

JUL 10 1926

Old  
Series.  
Vol. LI

CONTINUATION OF THE  
BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB

New  
Series,  
Vol. XLIII

# The Auk

A Quarterly Journal of Ornithology

Vol. XLIII

JULY, 1926

No. 3



PUBLISHED BY

**The American Ornithologists' Union**

LANCASTER, PA.

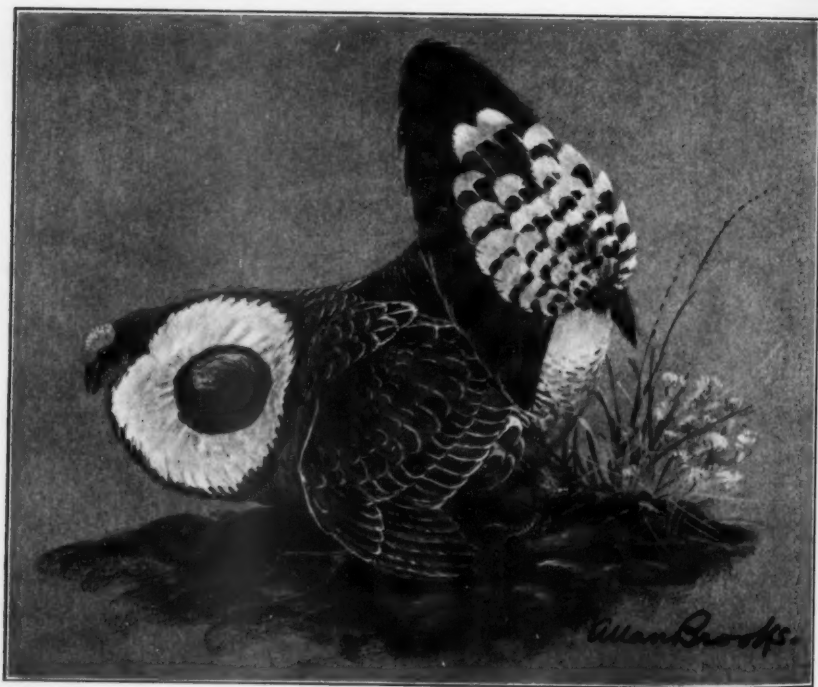
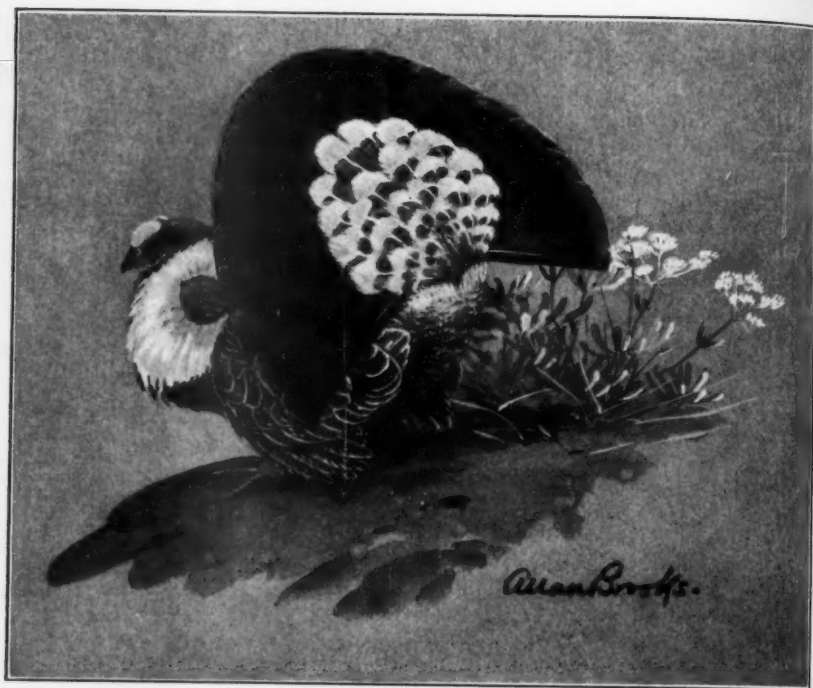
Entered as second-class mail matter in the Post Office at Lancaster, Pa.

## CONTENTS.

THE DISPLAY OF RICHARDSON'S GROUSE, WITH SOME NOTES ON THE SPECIES AND SUBSPECIES OF THE GENUS DENDRAGAPUS. By <i>Allan Brooks</i> (Plates X, XI) . . . . .	281
BONAPARTE'S GULL NESTING IN NORTHERN ALBERTA. By <i>A. D. Henderson</i> . (Plate XII). . . . .	288
THE NEST OF THE BAYA WEAVER BIRD. By <i>Casey A. Wood</i> (Plates XIII-XVI). . . . .	295
GAME BIRDS OF THE HOOPER BAY REGION, ALASKA. By <i>H. B. Conover</i> . . . . .	303
BIRDS OF THE ALTA LAKE REGION, B. C. By <i>K. Lacey</i> . . . . .	319
REMARKS ON THE ORIGIN AND DISTRIBUTION OF THE ZONOTRICHIAE. By <i>Rudyard Boulton</i> . . . . .	326
COMMENTS ON TWO HYBRID GROUSE AND ON THE OCCURRENCE OF TYMPANUCHUS AMERICANUS AMERICANUS IN THE PROVINCE OF ALBERTA. By <i>William Rowan</i> . (Plates XVII-XVIII). . . . .	333
THE REVISED CLASSIFICATION FOR THE FOURTH EDITION OF THE A. O. U. 'CHECK-LIST.' By <i>Alexander Wetmore and W. DeW. Miller</i> . . . . .	337
NOTES ON THE BIRDS OF N. W. LOWER CALIFORNIA. By <i>L. W. Huey</i> . . . . .	347
GENERAL NOTES.—Winter Records for the Black Skimmer ( <i>Rynchops nigra</i> ), 363; Gannet in Bucks County, Pennsylvania, 363; The Least Tern ( <i>Sterna a. antiarum</i> ) in Grenada, Lesser Antilles, 363; Whistling Swan on the Detroit River, 363; Greater Snow Goose ( <i>Chen hyperboreus nivalis</i> ) at Sound Beach, Connecticut, 363; Status of the Ring-necked Duck in South Carolina, 364; The Egret in Clinton and Lycoming Counties, Pennsylvania, 366; Spring Record of the American Egret at Princeton N. J., 366; Great Blue Heron Alighting on Water, 367; The Sandhill Crane in Luce County, Michigan, 367; Little Black Rail Nesting in Illinois, 367; Correction, 368; Krider's Hawk ( <i>Buteo borealis krideri</i> ) in Arkansas, 368; Red-tailed Hawk Killing Snakes, 368; Golden Eagle at Houston, Texas, 369; The Validity of <i>Nisusoides morelli</i> Pollen, 369; The Barn Owl ( <i>Tyto pratincola</i> ) in Michigan, 370; Short-eared Owl Breeding in Illinois, 370; The Name of the East African White-browed Coucal, 370; Arkansas Flycatcher Nesting at Melville, Sask., 370; Another Arkansas Kingbird ( <i>Tyrannus verticalis</i> ) in Maine, 371; The European Starling in Mississippi and in Florida, 371; Is the Starling Migratory? 371; Further Notes on the Starling in Canada, 372; Blackbird Roosts, 373; Unseasonable Occurrence of the Rusty Blackbird in South Carolina, 374; First Record of the Lark Bunting for Ontario, 375; Migration of the Purple Martin at Vicksburg, Mich., 375; Prothonotary Warbler at Washington, D. C., 376; Spotted Eggs of the Swainson's Warbler, 376; Warblers at Sea, 376; Carolina Wren in Northern Illinois, 377; Additions to the New Hampshire List, 377; Some Water Bird Notes from the Florida East Coast, 378; Rare Birds in Michigan, 379; The Wisconsin Bird List, 380; Additional Records from the Madison, Wisconsin, Region, 380;	
RECENT LITERATURE.—Dr. Phillips' 'Natural History of the Ducks,' 384; Wetmore on the Birds of Argentina, 385; Shelford's 'Naturalist's Guide to the Americas,' 387; Thomson's 'Problems of Bird Migration,' 389; Hellmann on 'The Origin of Birds,' 390; Wetmore on Patagonian Birds, 391; Hartert on the Birds of Feni and Nissan Islands, 392; Grinnell and Swarth, on the Pacific Brown Towhee, 392; Laing in Birds of the North Pacific, 393; Sushkin on Birds of the Russian Altai and N. W. Mongolia, 393; Mathews' 'The Birds of Australia,' 393; Wetmore on Fossil Birds from Nebraska, 393; Dr. Fisher's Bibliography, 394; Kuroda's Monograph of the Pheasants of Japan, 394; Bird Distributors of Mistletoe in Europe, 394; Birds Feeding on the European Corn Borer, 395; An Investigation of the Food of Terns in England, 395; Economic Ornithology in Recent Entomological Publications, 396; The Ornithological Journals, 398.	
CORRESPONDENCE.—The Fiji Mud-rocks, 408; Nature-wasters and Sentimentalists, 409.	
NOTES AND NEWS.—Obituaries: John Murdoch, 411; Prof. Herman Schallow, 412; Dr. Frank Evers Beddard, 413; Francis Nicholson, 413; Michael John Nicoll, 414; Harry Kirke Swann, 415; William Chase Bradbury, 416; Miss Ada Belle Copeland, 417; Annual Meeting of Cooper Ornithological Club, 417; Field Work of Joseph Dixon in Alaska, 418; Annual Meeting of Boston Society of Natural History, 419; Forty-fourth Stated Meeting of the A. O. U., 419.	







Paintings by Allan Brooks

RICHARDSON'S GROUSE STRUTTING IN DISPLAY

# THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

---

VOL. XLIII.

JULY, 1926.

No. 3.

---

## THE DISPLAY OF RICHARDSON'S GROUSE, WITH SOME NOTES ON THE SPECIES AND SUBSPECIES OF THE GENUS *DENDRAGAPUS*.

BY ALLAN BROOKS.

*Plates X-XI.*

BRITISH COLUMBIA is a mountainous province. To most visitors the impression it leaves is of mountains and nothing else, but there are vast areas in the interior where the rugged grandeur of heavily forested mountains is subdued to a park-like aspect of low hills with higher buttes and ridges that for the most part stop far short of the timber-line altitude. Here the spring comes early and the snow is soon gone from the rolling foothills with their scattered forests, park-like glades, and wide stretches of open treeless range-land.

Here all through the months of spring and early summer at long intervals a single note of a most elusive quality may be heard—"Oop!" It would puzzle anyone not acquainted with its author to guess whether it was uttered by bird, beast, or amphibian, or again it might pass entirely unnoticed among the many other bird voices.

This is the love-note of Richardson's Grouse (*Dendragapus obscurus richardsoni*). After seventeen seasons spent in the region it was not until the spring of 1925 that I was able to solve the mystery of its utterance. True I made no special effort, relying on the fact that sooner or later the desired opportunity must come.

Meanwhile all my enquiries among hunters and Indians resulted only in establishing the general belief that its author was the female and not the male bird as might be logically inferred. All Indians questioned were stout in their assertion that it was uttered by the hen bird during the mating action. A friend who was an exceptionally close observer was sure he had seen a hen utter it when a cock bird charged among a group of hens.

Once early in my investigations I was sure that the looked-for opportunity had arrived. Below me, on a little grassy plateau, a cock Grouse was slowly strutting, his great tail spread to its full extent and elevated over his back. Carefully and silently I sank down to watch and there before me was enacted one of those little dramas of the forest which come so seldom even to one who spends most of his time in the open.

From somewhere immediately beneath me ambled a "highly beneficial" skunk and approached the love-sick bird with guile in his little eye. At first the Grouse appeared to regard him as a victim to his attractions, but presently even his bemused senses signaled danger and he commenced to slowly retreat, still with outspread tail, while the skunk craftily attempted to sidle up and get him by the neck. So close were they that it was impossible for me to shoot the skunk without the risk of part of my load getting the Grouse as well. So, as I hold old-fashioned ideas on the subject, I had to jump up and intervene before the "highly beneficial" one had adjusted the balance of nature according to his scheme of things. And so passed my first opportunity.

Often in later years a male Richardson's Grouse has been seen uttering his low hooting, similar to the resonant hooting of the Sooty Grouse (*Dendragapus obscurus fuliginosus*) but with only a small fraction of its volume. In my experience Richardson's Grouse always utters this hooting from the ground. The tempo is the same as in the Sooty Grouse, five or rarely six deliberate evenly-spaced hoots or grunts—*Humph—humph—humph—ma-humph—humph*—but the sound is barely audible up to seventy-five yards or so. In the Sooty and Sierra Grouse this chant assumes a dominant character, ventriloquial to a degree it sounds far off when quite near and yet has a carrying power of at least two miles. In neither species is the tail very widely spread when

uttering, nor is there any special posture or action except a crouching attitude, high up in a coniferous tree in the Sooty Grouse, and on the ground, usually on some rocky ridge, in Richardson's. The Sooty Grouse also has the single *Oop!* although I have rarely heard it and then only late in the breeding season.

A very pronounced distinction in the two species however, is the nature of the gular air sacs. In the Sooty Grouse and allied races these in the breeding season become cellular, gelatinous masses, capable of great distention, and the exterior surface is velvety, deeply corrugated, and of a deep yellow color. In the fall this specialized character is largely lost, the skin loses most of its corrugations but still retains a yellow color.

In Richardson's Grouse and its sub-species *flemingi* very little change from normal in the character of the neck-skin occurs in the breeding season, the exterior is flesh-colored tinged with purple, deepening to purple-red when temporarily surcharged with blood.

The general habits of the two differ somewhat. The Sooty Grouse is unique among birds in that it elects to spend the winter at a much higher altitude than its summer habitat. Descending to the foothills, and in some localities to the level forested low lands, early in the spring, the males commence their return to the high hills before the end of the summer; the females and young follow them later, and before the winter they are all high up, usually just below timber-line in the highest mountains, where they remain until the following spring.

While this extraordinary movement is more or less common to Richardson's Grouse, it is not so pronounced, and many birds spend the entire winter in the lowest foothills. The spring movement downward however is carried further and at that season many move out on the rolling plains to nest, far from the nearest timber. I have seen a female with her brood in absolute prairie-like grassland over a mile from the nearest tree.

On June 9, 1925, while ascending a draw in which grew clumps of mock orange and snowberry bushes I flushed a female Richardson's Grouse that had lost her brood through the attentions of Crows and Magpies, ten yards further up a male rose, and settled some fifty yards up hill. Marking the spot I approached cautiously



after a short interval and presently saw the enormous fan of his tail among the lupins and other plants that grew on the rocky ground.

Working to a good position I was at last able to see the whole display from a distance of fifteen yards through my 8-power binoculars.

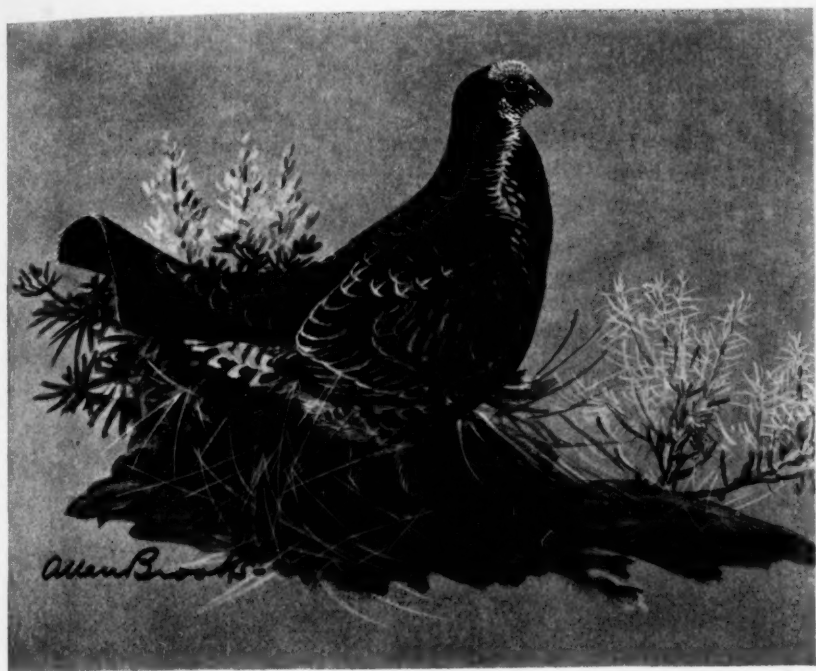
His first position was a crouching one the tail spread to extreme extension cocked right over the back and a little to one side, the neck feathers showing as a snowy mass with the red gular sac looking like a small oyster on a large shell.

He maintained this attitude for several minutes then the head was raised, the neck swelled, and he turned towards me and commenced to nod his head; the gular sacs were a deep purple-red, the "combs" over each eye changed from yellow to a dusky orange and were inflated to the extent that they almost met on the crown, and the inversion of the neck feathers showed as a huge blaze of white on each side. After six or eight nods the head was lowered to within two inches of the ground and with the neck inflated until the sacs showed a diameter of three inches, the tail still elevated and spread to its full extent, the feathers of the lower back standing on end, the wings trailing on the ground, the bird made a short quick run of six or eight steps curving to the right and emitted the deep "Oop!"

At the conclusion of this action he reverted to the pose of figure 1, Plate X.

A female was within fifteen yards but not visible and his display did not seem to be directed towards her. On my attempting to get still closer he ran down among some loose rocks and assumed the normal attitude as in figure 1, Plate XI. With my binoculars to my eyes I waited for him to repeat his display; after a few minutes he had commenced to slowly assume an inflated attitude when the female which I had not observed rose from behind me, he instantly rose and sailed down the valley after her.

The sketches illustrate; (a) the preliminary crouching attitude with tail spread and snowy neck-feathers displayed (Plate X, fig. 1); (b) the nodding that preceded the run, with neck and comb swelling (Plate XI, fig. 2); (c) the run at the climax of the display when the "Oop!" is uttered (Plate X, fig. 2).



Paintings by Allan Brooks

RICHARDSON'S GROUSE AT REST AND STRUTTING IN DISPLAY



Later on July 21, I came across a cock that was still vigorously displaying and calling among seven hens that had lost their broods and were drinking at the lake-shore in the early morning; they paid no attention to him.

The *Oop!* is not heard after the end of July in my experience.

In Bendire's 'Life Histories' descriptions of this act are given by two different observers. That on p. 41 by Denis Gale refers to the Dusky Grouse in Colorado, and on p. 48 a similar description is given of the Sooty Grouse's display as seen on Vancouver Island. Each of these descriptions records the note uttered at the climax of the display as the ordinary hooting of five notes and not the single explosive "*Oop!*" It is probable that both these observers wrote from memory only which might account for the discrepancy.

That the Grouse of the genus *Dendragapus* can be readily separated into two groups has been known to a number of workers for a considerable time; I drew attention to the outstanding point of separation in Vol. XXIX of 'The Auk' (p. 252). Later Swarth (Birds and Mammals of the Stikine River Region p. 204) has summarized the situation and points out that any changes in the present nomenclature of the species would hinge on the characters of the typical race *Dendragapus obscurus obscurus* (Say).

For some time I have been endeavouring to get this information by correspondence with a number of ornithologists in Colorado, but have been unable to get any facts bearing on the situation. A skin of an adult male from Silver Lake, Colorado, loaned me by the Museum of Vertebrate Zoology, taken in October, has a tail unlike anything I have seen in any other form of the genus, but there are no data as to the color of the soft parts. The neck skin is obviously unthickened and does not appear to have any yellow tinge in the dry skin, but the thickening of the skin is not apparent in any fall specimens of the *fuliginosus* type either, though showing to some extent in fresh-killed birds. The tail is very broadly tipped with light gray, 38 mm. wide on central rectrix, 27 mm. on outer, all the tail feathers very broad and not conspicuously truncate, width of central rectrix 36 mm., outermost 40 mm. It is noticeable that the outer feather is the widest. These dimensions are only exceeded by measurements of the tail

feathers of the lately described subspecies *howardi* in which the central rectrices are 55 and the outer ones 40 mm.

*Richardsoni* in Ridgway's Manual is credited with having wider rectrices than *obscurus*, but in a large series from British Columbia I have none that approach the width of these feathers in the Colorado bird mentioned above. It will be in place here to give a synopsis of the characters separating the two groups, based on adult males.

Group I, including *richardsoni* and *flemingi*.

1. Air sacs. Skin not conspicuously thickened or corrugated even in the mating season, color flesh, changing to purple red under the influence of excitement.

2. Voice. "Hooting" of five or six notes audible for less than one hundred yards, uttered from the ground. Note: the single hoot when in full display is alike and common to both groups.

3. Tail. In adult males squarer, the feathers truncate at the tips; terminal band of gray darker, sometimes (rarely) absent or but faintly indicated.

Group II, including *fuliginosus*, *silkensis*, *sierrae* and *howardi*.

1. Air sacs. Skin highly specialized in the mating season, thick, gelatinous, the surface deeply corrugated into a series of tubercles of a velvety texture and of a deep yellow color. This condition is reduced when the mating period is over.

2. Voice. "Hooting" of five or six notes of great power, audible for several miles. Always (?) uttered from high up in a tree.

3. Tail. In adult males rounded, the feathers rounded at the tips; terminal band of light gray averaging narrower than in group No. I.

The ranges of *fuliginosus* and *richardsoni* impinge on each other at many points and it is significant that I have never seen a hybrid. The two species of *Canachites*, *canadensis* and *franklini*, which are accorded full specific rank, under similar conditions hybridize freely, and the tail differences which separate them are merged completely. The two groups of *Dendragapus* should be better entitled to full specific distinction than these two species of *Canachites* unless the form *obscurus* proves a connecting link.

Further and definite information on this point is urgently needed before an adequate adjustment of the relationships of the genus *Dendragapus* can be made.



In a recent publication 'The Birds of Yellowstone National Park,' by Milton P. Skinner (Roosevelt Wild Life Bulletin Vol. 3, No. 1) mention is made on page 25 of the intergradation in that region of the races *obscurus* and *richardsoni*.

While this indicates that *obscurus* belongs to group No. 1 it is in no way conclusive. Intergradation might be the result of hybridization as in the genus *Canachites*, and would produce a probable blending of the voice characteristics of the two groups in the resulting hybrids.

It is to be hoped that ornithologists in Colorado will bring forward data that will definitely settle this interesting question.

*Okanagen Landing, B. C.*

## BONAPARTE'S GULL NESTING IN NORTHERN ALBERTA

BY A. D. HENDERSON.

*Plate XII.*

[FOREWORD—When I undertook to compile the life history of Bonaparte's Gull (*Larus philadelphia*), I was surprised to find that so little had been published regarding its nesting habits. Apparently no one had found its nest since the days of MacFarlane and Kennicott; or, if any one had, the fact had not been published. Authentic eggs are very scarce in collections; a few of MacFarlane's thirty-seven sets have been distributed by the National Museum in exchanges and a few other sets may have found their way into collections unheralded. It seems remarkable that the breeding grounds of such a common and widely distributed bird, should remain undiscovered for fifty or sixty years. I have seen adult birds in the breeding season in the Magdalen Islands, Quebec, near Lake Winnepegosis in Manitoba and near Quill Lake in Saskatchewan, but have never found a nest. North of Prince Albert, beyond the north branch of the Saskatchewan River, I have seen this Gull in just such country as that described below, and it probably breeds all through the muskeg wilderness of northern Canada.

I have been trying for several years to interest Mr. A. D. Henderson of Belvedere, Alberta, in locating the breeding grounds of this species. I was more than pleased to learn that he had discovered them this year, 1925, and was delighted to receive from him a handsome nest and a set of three eggs. He has written up his experience with them and sent me the accompanying paper for publication.—A. C. BENT, *Taunton, Mass.*]

IN 1922, I sent some notes on Alberta birds to Mr. A. C. Bent in hope that he might find some of them of sufficient interest to be included in his 'Life Histories of North American Birds.' One of them referred to my having seen Bonaparte's Gull (*Larus philadelphia*) in the vicinity of Belvedere, Alberta, in the breeding season. Mr. Bent suggested to me the desirability of securing definite breeding records of this Gull, as little was known of its

breeding range. Accordingly I made it a point to question every trapper, halfbreed and Indian I came in contact with, as to any knowledge they might have of a breeding place of this bird, but results were rather scanty. One halfbreed, however, told me he had once seen three nests of this Gull in spruce trees at a small lake near Athabasca Landing.

The first clue of any real value I obtained from an old Indian, Paul Potteskin, near Fort Assiniboine in June, 1924. On questioning him through an interpreter he at first said he did not know, evidently not recognizing the bird from my description, but on being shown a colored illustration of the bird, he immediately recognized it and said he had seen many nesting in spruce trees at a small lake near the foot of the Swan Hills. There the matter had to rest until the season of 1925.

However, it was not in the wilderness lying between the Athabasca River and the Swan Hills, that I was to see my first nest of Bonaparte's Gull, but, strangely enough, on one of my own farms at Belvedere. On May 22, 1925, I received a note from the wife of the man who rents the farm saying she had found a nest with two eggs of the little Gull I wanted. I lost no time getting to the place and was soon gazing at two eggs of Bonaparte's Gull in a beautiful nest of dead tamarack twigs and beard moss, about nine feet up in a spruce tree at the edge of a small pond in a muskeg of about twenty acres in extent, with a scattering growth of tamarack and spruce trees in it.

The bird left the nest at my approach and swooped at my head with cries of "Kea-rr." She then circled around overhead uttering the same cry and alighted on near-by trees and also on the pond. When I left she returned to the nest. There were three eggs in the nest when I returned on the 24th to secure some photographs; but, as I am the merest amateur, as a photographer, taking nothing but snapshots and, as the sun refused to shine, I had to give up the attempt until next day when the views accompanying this article were secured.

On May 29, I started by automobile for the Fort Assiniboine country north of the Athabasca River, late in the afternoon, my wife accompanying me. I had started a team and wagon ahead in the morning with Jean Chalifoux, a halfbreed hunter, who

knew the lakes and trails of the country we intended to explore. We overtook Jean at Camp Creek, six miles south of the Athabasca and camped for the night. Next morning we travelled on, crossed the Athabasca, passed Fort Assiniboine, and continued seventeen miles northeast, arriving at a place known as the Klondyke City which was formerly the headquarters of the Indians who lived in the district. There are a few sections of hay meadows and good land here, like an oasis in the surrounding muskegs.

On the north side of the Athabasca valley the character of the country undergoes a complete change from a country of poplar woods dotted with farms, to a wilderness of muskegs and sandhills, the predominating timber being spruce and tamarack in the muskegs and jack-pine on the sandhills. The old Klondyke trail winds through it, following the ridges and good land along the creek bottoms. Occasionally a pack trail or an old survey road branches off into the country on either side. The Klondyke City was as far as we could penetrate with the car and we waited for Jean who arrived in the afternoon.

In the evening at a halfbreed camp I learned among other interesting bird information that Bonaparte's Gull had been seen this spring at some lakes about seventeen miles northeast. There are seventeen lakes lying close together in this section and, as it was considerably nearer than the lake told of by Potteskin, I decided to try that locality first. In the night, however, our horses took the back trail and it was well on in the afternoon before we got started, with one horse packed with our outfit, my wife riding the other and Jean and I on foot. Jean did not know the summer trail, having travelled straight across country through the muskegs on previous trips in the winter and we got tangled up on the flats of Deep Creek, losing much time before we found the trail again on a Jack-pine ridge which we followed several miles to its end at the first lake. It was then 11 P.M. and not a spear of grass in the pines for the horses which we had to tie to trees for the night after which we had supper and turned in.

At daylight we found a slough with good grass for the horses and after breakfast walked around the lake. The trip did not lack interest in species of birds observed, but we found no Gulls. In

the afternoon we took the horses and all went about five miles north to another lake, but here also there was not a Gull to be seen and I was getting rather discouraged. We then left the horses and took to the muskeg, sinking ankle deep at every step and occasionally breaking through the spongy moss into the muck below. It was hard going but we were soon cheered by hearing the call of a Gull beyond the next ridge. Crossing the ridge and entering the next muskeg we soon saw the Gull perched on a tamarac. On our approach it flew at my head calling "Kea-rr," a few yards more and my wife was the lucky one who spied the nest, probably the first white woman who ever found a nest of Bonaparte's Gull. This nest was about eighteen feet up in a tamarac and contained two eggs which when blown proved to be a complete set, incubated a few days. Walking through the open growth of tamaracks toward another lake about three hundred yards away we found two more nests. One was about twelve feet up in a tamarack and contained one egg shell and another shell lay on the ground beneath. The other nest also in a tamarack about eight feet up contained two egg shells. Though Crows were not at all plentiful, we saw a few in the neighborhood and it is likely they were the culprits. We saw six Gulls here and it is likely the three nests found are all there were. I also noticed some old nests which showed they had bred in the same place in previous years.

The next day, June 2, Jean and I took our lunch and walked several miles to another lake, we saw odd Gulls on the trip, but concluded they were birds from the colony found the previous day. June 3, it rained nearly all day and until noon on the 4th. In the afternoon it cleared and we packed up and returned to the Klondyke City in considerably less time than on our outward trip, having no trouble with the trail.

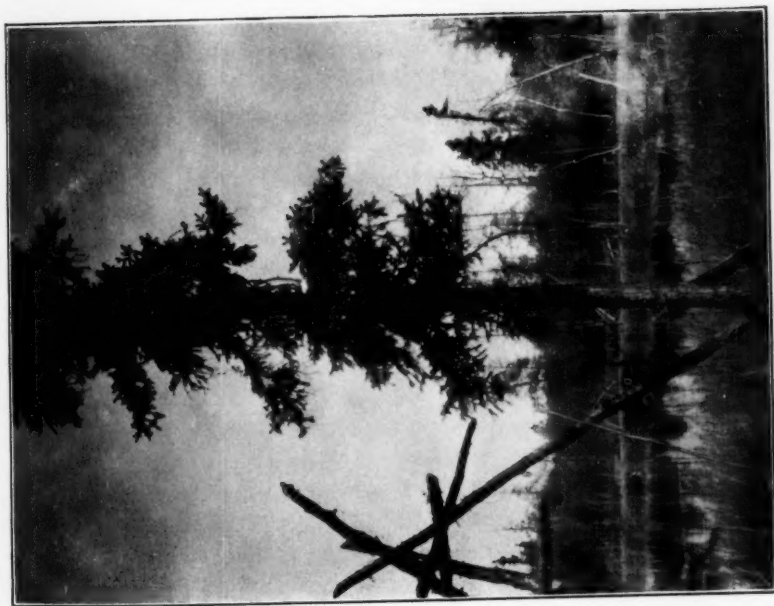
On June 5, we travelled with the team and wagon to Goose Lake about eighteen miles northwest, but found no Gulls there. Next morning we went on about six miles to Foley's old cabins on Deep Creek. In the afternoon we went about five miles south on an old survey road, through heavy poplar timber, coming out at a lake in the muskeg country again. We immediately saw a Gull alighting on a small pine at the other end of the lake and



started to walk along the shore toward it. I then saw another about half a mile away sitting on a dead snag in the muskeg and placing my glasses on it, saw a white object in a spruce about thirty-five yards to one side which I took to be a Gull on her nest and so it proved to be when we reached the spot. This nest contained three eggs. When some distance away I saw another Gull fly away and while I was packing the eggs the others went to look for the nest and finally found it about fifty yards away. It also was in a small spruce and contained three eggs. In order to show how well some of the nests are hidden I might say that Jean looked at this tree twice and passed on. My wife came to it and called him back to look again when they finally decided there was a nest. On June 7 it rained until noon and all the previous night. In the afternoon I went with Jean to another lake in the muskeg. It looked to be an ideal spot for Gulls, but we saw none.

On June 8, there was a heavy frost in the morning. We all went to a lake about a mile south of the one visited on the 7th. We saw no Gulls on reaching the lake and started to walk around it. Stopping to look back I saw a Gull on a nest in a small spruce on the edge of the timber about three hundred yards away and only about fifty yards from where we had come out to the lake. This nest was eight and a half feet up and contained two eggs and another egg lay uninjured on the moss at the foot of the tree. Walking back in the muskeg, I found another nest about forty yards away about seven and a half feet up on a horizontal branch of a small spruce. It was just completed. There were three pairs of Gulls here, but we could not find another nest. We then crossed the next ridge to another lake, but found no Gulls. On June 9 we returned to the Klondyke City and next day drove home to Belvedere in the car.

We saw several other interesting birds on the trip but, as it was an expedition mainly for nests of Bonaparte's Gull, I have confined myself altogether to notes on this bird. However, it might be of interest to mention some other characteristic birds of the muskegs. A few of them are:—Yellow-legs, Greater Yellow-legs, Solitary Sandpiper, Lincoln's Sparrow, Rusty Blackbird and Dowitcher, the last probably the eastern form, or possibly a new variety.



Photos by A. D. Henderson  
NESTING TREE AND NEST OF BONAPARTE'S GULL (*Larus philadelphia*)



Jean reached Belvedere on June 11, and next day brought me another nest and three eggs of Bonaparte's Gull taken that morning by his wife near the place the first nest was found. This nest was seven feet up in a spruce, three yards from the pond in the muskeg. There was one egg in it on June 5, and it was almost certainly a second set from the same pair. Another nest was found later on near the same place with two eggs both of which hatched and the young were successfully raised.

It would seem from the foregoing that Bonaparte's Gull breeds in small numbers in scattered colonies throughout the muskeg country beyond the Athabasca. Also that a few pairs breed further south in suitable places, like the pair found nesting at Belvedere. I did not find more than three pairs breeding at any one spot, but it is likely that considerably larger colonies exist which future expeditions may discover.

Although some of the nests are almost impossible to see when the bird is not sitting, others are quite easily noticed. When the bird is sitting it can be seen at a distance of several hundred yards and it seems strange that travellers and residents in the north should have discovered so few nests. However, most people prefer to give the muskeg country a wide berth in the summer, and travellers confine themselves for the most part to the rivers and larger lakes and do not penetrate the back country. Thus the Bonaparte's Gull, a very numerous species, has escaped notice in the breeding season except in a few instances. I would say that the nest is one of the easiest to find, as the white plumage of the birds is very conspicuous in their summer home amid the pale green of the tamaracks and the somber hues of the spruces, and when the birds are once located a short search will usually reveal the nests. A description of the nests taken follows all measurements being in inches:—

(a.) Taken May 25, 1925, nine feet up on horizontal branches of a spruce tree, close to the trunk, made of tamarack twigs and a few spruce twigs, lined with beard moss. Inside diameter 5, outside 6 to 8. Depth inside .75, saucer shaped. Three eggs, fresh, measured  $1.91 \times 1.38$ ,  $1.83 \times 1.36$ ,  $1.84 \times 1.38$ .

(b.) Taken June 1, about eighteen feet up in a tamarack on two horizontal limbs close to the trunk, two hundred yards from

nearest lake, of similar construction to "a" with a few alder twigs replacing the spruce. Two eggs, slightly incubated, measured  $1.79 \times 1.35$ ,  $1.90 \times 1.39$ .

(c.) Taken June 6, seven feet up on a horizontal branch of a small spruce made of tamarack and alder twigs lined principally with green moss from the muskeg and a little beard moss, also dry grass and plant stems. About three hundred yards from a lake. This nest was not nearly so well built as the two foregoing. Three eggs, incubated about one-third.

(d.) Taken June 6, eight feet up in the thick bent-over top of a small spruce about fifty yards from "c". A poorly made nest of a very few small twigs, but principally composed of beard moss and green moss from the muskeg matted together with a few plant stems and a little dry grass. Three eggs incubated about one-quarter, measured  $2.00 \times 1.32$ ,  $1.95 \times 1.33$ ,  $2.02 \times 1.32$ .

(e.) Taken June 8, eight and a half feet up in the thick top of a small spruce on the shore of a lake, about a mile from "c" and "d". A rather poorly made nest of tamarack and alder twigs and principally of green moss and a little beard moss, dry grass and stalks and plant stems matted together. Two eggs in the nest were incubated about one-half and another egg at foot of the tree was incubated about one-quarter. Eggs measured  $1.93 \times 1.35$ ,  $1.89 \times 1.38$ ,  $1.87 \times 1.38$ .

(f.) Taken June 12, seven feet up in a spruce, three yards from a pond in a muskeg, made of tamarack twigs and a few of alder and spruce interwoven and lined with beard moss, a few pieces of weed stalks and dry grass in outer parts. Inside diameter 5. Outside diameter 7 to 8. Depth inside 2. Thickness of nest at bottom 1.25. Most substantial nest of the six. Three eggs, incubated, trace, measured  $1.83 \times 1.41$ ,  $1.84 \times 1.41$ ,  $1.83 \times 1.35$ .

The nests found resolved themselves into two types, one a slovenly, flattish structure of irregular shape bearing some resemblance to that of the Mourning Dove, but more substantial. The other type was round and saucer like in shape and up to 2 inches deep, very artistic in appearance and resembling that of the Olive-sided Flycatcher on a larger scale.

*Belvedere, Alberta.*



## THE NEST OF THE BAYA WEAVER BIRD.

BY CASEY A. WOOD.

*Plates XIII-XVI.*

THE two species of Weaver Birds found in Ceylon closely resemble in outward appearance the House or "English" Sparrow. The variety that builds the more elaborate nest is the Baya (*Ploceus p. philippinus*). The bird is also found all over British India, Java and Sumatra. I had excellent opportunities of observing this remarkable nest builder and found many of its constructions throughout Ceylon. The male resembles the female during the "off" season but after the spring and autumn moults he assumes a canary-colored crown and other yellow patches, well distributed over most of his otherwise brown and white body. This decoration he loses when there is no nesting to occupy his attention.

The Weavers love to live and build in colonies, and generally choose for the purpose the neighborhood of a convenient tank or of a terraced rice field. Being graminivorous animals they find that paddy fields furnish valuable granaries for a food supply.

I noticed, also, that nests found in the Northern Province of Ceylon almost invariably hang from the north and east exposures of the trees in which they are built and thus are least endangered by the battering winds of the southwest Monsoon.

Although much has been written about the remarkable nests of *Ploceus* there are many interesting points connected with their construction that have escaped most observers or that do not appear to have impressed writers sufficiently; and I propose with the aid of a series of photographs taken *in situ* to point out some of these curious happenings.

While the Tailor Bird does her best to conceal her nest (in which she succeeds admirably) the Weavers build their homes quite in the open where they can be seen of all men.

I saw a number of nests in a colony that had settled in a large tree growing about the center of a Ceylon *cheena*, or clearing made in the jungle for agricultural purposes. The proximity of a watch-

house occupied by a boy whose duty it was to drive off destructive birds did not seem to affect the Weavers to any appreciable extent. They came and went as if no human being were near them. Wherever placed the main objects sought are shelter from bad weather and safety from enemies. These provisions are reflected in the suspension of the nests on the sheltered side of a tree on branches detached from other limbs and by the peculiar form and swinging character of the nesting houses. There is, however, one precaution always taken—the nest hangs free in air and swings from the tree on which it is built in such fashion that it cannot be approached from below or from neighboring branches, and when that end is accomplished the birds may suspend their nests from quite low points, often not more than fifteen feet from the ground. The terminals of palm fronds and other branchlets, about twenty feet from the earth, or surface of a pond, are favorite sites.

According to some writers, the Weavers, instead of building a new nest once or twice a year, may repair an old one, the chief evidence of which is the color contrast between the nest and the old grass employed in the process. Indeed a tree colony of several dozen nests may exhibit at the same time a collection of structures that vary in age from old specimens battered by months of wind and rain to new and fresh nests on which the builders are still working. In some of the latter from one to four white eggs may be hatching; from others issue little chattering cries that betray the presence of hungry fledglings.

The shape of the Ploceine nest has been likened to many objects—retorts, inverted bottles, flasks, etc. But to my mind Newton's similitude comes nearest to it. He compares it to a stocking hung up by the toe, the heel enlarged to receive the eggs, while entrance and exit are made through the leg.

The material out of which the nests are made is mostly pliant grass stems and other tough fibers, especially strips of palm fronds. Legge and others think the birds strip from the leaves of palms, plantains, agaves, and other stringy plants fine but very strong threads for the weaving process. The bird collects them in this manner:—He bites a small piece from the base of the palm, sisal, hemp, or other fibrous plant, repeats the incision towards the tip, and grasping a few strands of the margin in his beak,



Photos by C. A. Wood

TWO BRANCHES OF DAMBA TREE SUPPORTING NESTS AND CANOPIES OF  
CEYLON WEAVER-BIRD



jerks his head away from the leaf, thus tearing off a fine cord, perhaps a line in breadth that corresponds in length to the distance between the two incisions. I have examined with a lens this weaving material from many nests and believe Legge's description to be most accurate. Moreover, I have watched the birds repairing the exterior and arranging the material of their nests and have often seen them tugging at a length of fibre, part of which has already been woven into the nest, and I have seen them flying in the air with the free end of a strand in their bills, so that it might be drawn taut and smooth before inserting it beneath other fibres for the support of the nest wall.

As a preliminary to the construction of the nest proper, the birds wrap a considerable amount of fibrous material around a chosen limb or frond. Often it is as much as three or four feet from the top of the pendant nest to the farther end of this anchorage, thus securing a firm hold upon the tree. The small strips are not only wound round the branch but are plaited together so securely that it is impossible with ordinary effort to separate them. The plaiting is then continued downwards from the branch to form a stout aerial stalk from three or four inches to a foot in length, the end of which is evidently expanded into the globular structure of the nest proper. The long diameter of this bulb is from five to six inches; its short diameter about four.

Having shaped this upper chamber and located the future egg chamber, the birds next build a strong, compactly woven transverse band or bridge, that divides the lower part of the space into two unequal chambers. (Plate XIV, fig. 1)

In every large colony are found what look like unfinished nests—that do not in building get further than this perch or roost stage, looking, as Jerdon says, like an inverted basket with a handle. So far as they go, these structures seem strong and well-finished, giving rise to many speculations as to their status. Are they made in an excess of home-building zeal by the male bird upon whose feet and beak time hangs heavily? Or, are they shelters to which he may retreat and rest secure from the torrential Monsoon? My friend, Mr. John Still, calls these half nests "canopies" (plate XIV, fig. 2) and believes they are intended by the male builder as a protected roost, and are not merely unfinished nests

or an expression of extra-architectural activity on the part of the male. The main argument favoring this hypothesis is, of course, the finished appearance in many cases, of the canopy itself, its thick, smoothly plaited walls, the rounded edges of the perch and the absence of any attempt at completing the base of the globular chambers or the entrance spout. Captain Legge suggests that the canopy is a nest deserted after partial construction on account of some fault in it—an egg chamber too small, a neck not strong enough, etc.

Whether the canopy is deliberately planned as a shelter for one or both birds, or whether it is only a partially built and deserted nest, there can be no doubt that the non-incubating male has been seen occupying the structure and using it as a perching convenience; and there is no doubt that, whatever the original purpose of these structures, the canopy does make an admirable refuge from wind, rain and hot sun.

The illustrations show more plainly than any description the forms and the relative size of the completed nests and so-called canopies, both before and after removal from the tree-colony. One colony, placed in a Halamba tree, furnished four canopies, as well as two full length and one short nest. On the ground beneath the tree were picked up—evidently detached by the wind—five full length and two short-tubed nests.

In another tree we found seven canopies and five nests. Three egg chambers held a single egg and two had two eggs each. All the canopies had, on or near their margins, small lumps of dried mud, about which something further will be said; on the other hand, very few nests showed these deposits.

The lowest structure was twelve feet from the ground, the average was sixteen feet and the highest about twenty-five feet.

A small but for many reasons interesting colony had nested in a Damba tree. It numbered two canopies, one definitely unfinished nest, one long (with its entrance tube fifteen inches) and two completed but shorter nests. The long nest contained fledglings on June 1, 1925.

Measurements were made of five nests and four canopies in one colony. The diameter of the entrance tube attached to the shortest nest was 2.75 inches; the others varied from 2.25 to 2.50





Photos by C. A. Wood

LEFT.—PERFECT NEST AND CANOPY OF CEYLON WEAVER-BIRD CUT TO SHOW INTERIOR. RIGHT.—PERFECT NEST AND INCOMPLETE NEST OR CANOPY.



inches. The length of the shortest tube was 3 inches; the others varied from 6 to 15 inches. The circumference of the smallest nest was 14 inches; of the largest 18.50 inches. The longest nest measured, over all, 37 inches; the shortest 17 inches.

As for the four canopies the total length of the shortest was 12.75 inches; of the longest, 16.50 inches. The height of the chamber varied from 4 to 6.50 inches; the width of the bridge or perch, one half to one inch; the diameters of the two entrances (either side of the perch), from 2.25 by 3.75 inches to 3.50 by 2.50 inches. The circumference of the largest canopy was 20 inches; of the smallest 15 inches. Hence one sees that the nests and canopies vary appreciably in size and capacity. The smaller of the two cavities divided by the transverse roost or perch is the one continued into the long tube-like entrance.

As soon as the egg-chamber is finished the female bird confines her attention to the completion of the interior of the nest, and leaves the work on its exterior to the male. They seem to work together, although the male gathers most of the building material which he pushes through the walls. It is then woven back and forth as long as possible, that is, until thick, tough, solid, basket-like walls are the result. The male bird now completes the entrance-spout, strengthens the walls of the upper nest and, in some instances, begins a second nest—like the structure already mentioned.

During the nest building both birds enjoy themselves thoroughly, the male often singing a little song as he joins with his mate in weaving the nest material into place.

Even after the eggs have been laid and the female has commenced to incubate the male continues to lengthen the entrance tube and to put what he regards as the finishing touches on his house. Often have I seen him diligently pushing fibres into place and pulling them back and forth on the surface of the nest to the accompaniment of a sweet little warble. I have never found a smooth firm margin on the end of any entrance tube; it is always frayed, thin and loosely woven, presenting a decidedly unfinished appearance. This condition is, I think, precautionary; it makes it all the more difficult for an enemy, by gaining a foothold on the threshold to invade the interior.

The length of the cylindrical entrance tube—generally two inches in diameter—varies greatly, as will be seen in the illustrations. Indeed the longest one I ever saw was in the private aviary of Mr. Shore-Bailey of Westbury, England, who has been very successful in breeding these birds in captivity. One of his nests has the entrance tube more than thirty inches long.

The length, strength and thickness of the various external components of the Weaver Bird's nest depend largely upon the building capacity of the male bird. As with male humanity this varies greatly. Long after the female begins to sit he may continue his task of nest building. If he is possessed of the building urge he strengthens the attachment of the structure to the tree above, adding more strands of fibre to and lengthening the rope that is already wound about the branch above. This suspension cord is also increased in sustaining power by short fibres of palm or agave, plaited with strands already in position; and the walls of the nest chambers themselves are consolidated by similar material worked into their thickness. Meantime the tubular entrance is extended and the upper two-thirds of it further strengthened.

When the young birds are first hatched they are probably fed by the parents with food brought in by way of the long tube but in some instances, at least, openings are made by the male bird from the outside directly into the egg chamber and the fledglings are fed through these holes.

One of the most fascinating habits of the Baya is the manner in which he enters and leaves the nest. I have watched the process many times and have always gazed in wonderment. Even the so-called Chimney Swift entering his home may learn something from a bird who, apparently without agitating the shaky structure of his domicile, flies up the narrow chimney-like structure and out again without hesitation. I have seen the male in the midst of a job of repairing the roof suddenly take it into his head to visit his brooding wife. Flying or tumbling down the side of the nest he spread his wings just in time to stop his fall a foot or two below the entrance. Seemingly without effort, he turned in mid-air and shot, like lightning, into the cylinder above him. I do not believe any other bird could have done it. Legge, who has often watched the performance, thinks that the bird closes his



Photos by C. A. Wood

ABOVE.—NATIVE WITH NESTS OF THE CEYLON WEAVER-BIRD  
BELOW.—NESTS AND CANOPY PENDANT FROM LIMB OF TREE





wings at the moment of entering the tube and runs up it to the egg chamber. Be that as it may, *Ploceus* is secure in his home, for he is certainly the only animal that can fly, crawl, run, or creep up the smooth, fragile, tube that leads to the interior of his nest.

The completed nest is a firm springy contrivance and so well woven that when thoroughly dried it is used by the natives for filling mattresses.

Sometimes during nest construction the birds bring in small lumps of wet clay which they stick to various parts of the interior of the nest and its walls.

I found these curious deposits in varying quantities in nearly all the nests I examined. One had about a tablespoonful of plastic mud deposited on three different localities, including one small patch in the egg chamber. On the other hand a few had no mud deposits and others had very little.

Just what these clay deposits mean is by no means clear. Certainly none of the numerous explanations is satisfactory to me, and I especially reject the generally accepted theory that the mud is employed to balance the nest in the wind, and to prevent its being blown about while the birds are entering and leaving it; nor can I adopt Layard's guess—that the birds use the clay as a sort of whetstone on which to sharpen their bills. In the first place, half a tablespoon of dried mud plastered midway of a large and long swinging nest can have no influence whatever upon its equilibrium in even a mild breeze. Then again, many nests have no mud in their structure at all. Of course the natives, as usual, have their interpretation of the phenomenon—the bird uses the clay as a candlestick on which are stuck glowworms to lighten the darkness of the nest! Perhaps I may add another and to my mind more plausible theory—the habit is the survival in *Ploceus* of some ancestor who built his nest partly or entirely of clay. The black clay deposits in Baya's nest, then, serve no useful purpose at all. They are merely vestigial remains of a household economy, like the sleeve buttons on one's coat! One is reminded of a somewhat similar example in the habits of birds entirely unrelated to the Weaver. As is well known, certain Swifts—*Collocalia*—(the so-called "edible nest" variety) make their nests

almost entirely of their own mucus. But this genus is in an evolutionary sense flanked on the one hand by genera (*Micropus*, *Tachornis*) whose nest material is partly mucus and partly other material, and on the other by genera whose nests have little or no mucoid matter in their make-up.

However that may be, our Weaver Bird is a highly intelligent animal, and whether one attributes his remarkable house-building to instinct, to reason, or, as is most probable, to a combination of these faculties, he makes a very attractive captive and an engaging presence in an aviary large enough to afford him plenty of room in which to build and breed. He is, however, impatient of avian relatives, and is very likely to quarrel with other birds placed with him in the same flight.

T. B. Fletcher (*Birds of an Indian Garden*, 1924) tells us that among the natives of the Punjab a popular rhyme contrasts the helpless monkey with the resourceful house-building Weaver, in that the former cannot protect himself from the weather in spite of his human hands and feet. "This verse is quoted for the benefit of small boys and girls who object to learn, just as the busy bee is held up for infantile admiration of Western lands."

*Kandy, Ceylon.*

## GAME BIRDS OF THE HOOPER BAY REGION, ALASKA.

BY H. B. CONOVER

*(Concluded).*

**Grus canadensis.** LITTLE BROWN CRANE.—On May 7, this Crane first made its presence known, when several were heard calling. None were seen, however, until the next day but from that time on they were common. On first arrival they stayed pretty well to the tops of the hills and knolls where the snow had already disappeared, but as soon as most of the tundra was bare, the birds scattered out in pairs all over the country.

On May 28 the first nest was found, with two slightly incubated eggs. These Cranes nested almost everywhere throughout the low hills and marshes, except the flats very close to the coast. No two pairs nested near together, but each family seemed to have a piece of territory to itself. The nests were simply hollows on the top of some bog or niggerhead, very scantily lined with grass, roots and small pieces of the caribou moss. If come upon suddenly, experience showed that the hen would flatten out on her nest and allow a close approach; but if the intruder was first seen at some little distance, she would sneak quietly away. Her mate generally joined her, and while she sneaked off with drooping wings and neck, he would strut about calling anxiously. The male bird could generally be distinguished by its much redder coloration.

The first newly hatched young were seen June 21, when a nest with one chick and a badly pipped egg was found. This nest was visited several times during the day to see if the other egg had hatched. At each visit the two old Cranes would fly off to a little side hill where a cock Ptarmigan was always stationed, evidently standing guard over his mate and her nest. Immediately the big birds had alighted, the Grouse would ruffle up like a game cock and make a dash at the male Crane, who would jump into the air and strike out with his long legs. The Ptarmigan always kept a safe distance away and no damage seemed to be inflicted on either side. After a little of this, however, the Cranes would stalk solemnly away on their long legs, with the Ptarmigan in hot pursuit, but badly put to it to keep up with his enemy.

When first hatched the young are very weak in their legs. Two kept alive for a few days were very combative and would peck away at each other at a great rate. Their call was a low, peeping whistle, sometimes with a sort of roll in it similar to that of the old birds. Within twenty-four hours they attempted very clumsily to eat flies or bread crumbs held out in the fingers. At birth the color of their legs was a dull pinkish flesh, but in about twenty-four hours this had changed to a much darker shade. Iris was dark gray, bill dull flesh. On July 26, while cruising through a slough, we ran across a pair of these birds with two young

about a third grown. The young could not run very fast and were soon caught. They were very amusing pets and within a few hours lost all fear and made themselves at home on the boat. Like the younger birds they were continually pecking at each other, and also, as in the downies, their legs seemed to be the weakest part of the body. If exposed to the cold or wet their legs would give way, and until the birds had become warm again they would be unable to stand. One young one seemed very fond of salmon berries, ripe or green; the other did not seem to care for them so much. Both, however, ate meat ravenously and would swallow small mice without difficulty. Cooked dried peaches were also a favorite diet. Their legs were dull brownish flesh color, with big, clumsy, oversized knees. The bill was dull flesh, and the iris brown. Unfortunately through wrong diet or lack of exercise, they died after three or four days.

An adult female weighed 6 lbs. 8 oz., and another unsexed bird 7 lbs.

**Phalaropus fulicarius.** RED PHALAROPE.—This Phalarope first put in its appearance on May 17, and by the 21st was common. A male shot on this latter date was accompanied by two females, which showed the utmost concern, wheeling about and returning to the dead bird time and again.

It was a common nester in this locality, building like the Northern Phalarope, near swampy spots. The eggs are laid in a slight hollow in the ground, generally lined with grass. The first nest was found May 27. The old birds did not show much concern and generally slipped off the nest when approached within twenty yards or so. Sometimes, however, they would sit close. Several nests containing only three eggs were found and I believe this number may constitute a full set quite often. On June 19, a nest with three newly hatched young was found. The male parent showed very little concern, although he stayed in the vicinity. A nest located on June 10 with three eggs, hatched on June 29.

As early as June 11 males were noticed that seemed to be changing into winter plumage. Two days later two were collected—one was about half and the other over three-quarters in the gray plumage. From their sexual organs they seemed to be breeding. At the same time no females were noted in anything but full breeding plumage, and a male collected June 19 showed no signs of changing. As late as July 5 many were seen in practically their full red dress. There seemed to be a great individual variation in the time of molting. As it does not seem to be generally recorded in the standard works, attention is called here to the difference in coloration of the bill in the two sexes when in summer plumage. The female has the bill yellow except for the extreme tip, which is black, while the male has the front half black or dusky and only the basal part yellow.

**Lobipes lobatus.** NORTHERN PHALAROPE.—Northern Phalaropes were first noticed on May 17, and four days later they were common. The first eggs were found May 27, the last on July 23. They build their nests generally in a marshy spot, often in the midst of a tuft of grass on

some small bog. They are simple hollows lined with grass. The brooding birds as a rule sit close, but do not show much concern after being driven off their eggs. The first newly hatched young were seen on June 25. The old birds now became very noisy and solicitous. The only data on the incubation period were obtained from one nest, which was discovered with its complete set of four eggs on June 10. These eggs hatched the evening of June 30.

There is very little difference between the downy young of this species and that of *fulicarius*, but *lobipes* can be distinguished by its narrower, more pointed bill, and by its having the lower abdomen and anal region greyish instead of yellowish red. Both species have the upper parts marked with a beautiful tortoise-shell pattern of reddish yellow and black mixed with a little white. By the first part of July some of the Northern Phalaropes seemed to be molting into their winter plumage.

**Gallinago delicata.** WILSON'S SNIPE.—This was not a common bird. The first seen, a pair, were taken on May 25. After that individuals were occasionally seen. One bird, probably a male, was seen to give a curious little performance. He was first noticed sitting on a knoll, and as I approached, flew up into the air about twenty feet and then scaled down to the ground, giving a little song as he went. No booming noise was heard.

A nest was found on June 4, and a half grown bird was brought in by a native on July 10.

**Limnodromus griseus scolopaceus.** LONG-BILLED DOWITCHER.—The Dowitcher was first noticed on May 21, when it was suddenly found to be common all over the tundra. It was a fairly common breeder about the region of Point Dall. The first nest was found May 29. The birds generally chose for a nesting site a tussock in some bog where they would make a fairly deep hollow, line it with a little grass, and there deposit their four eggs. The brooding birds sat very close and had to be almost stepped on before they would flush. They showed much concern, flying only a little way and then running about calling plaintively.

Newly hatched young were found June 22. The incubation period seems to be about twenty days. A nest found by Murie on May 31 with two eggs had four eggs on June 2, and on being visited the evening of June 22, was found to contain two young and two pipped eggs. The colors of the soft parts of a downy young several days old were as follows: Tarsus olive with blackish stripes down the sides, bill black, iris brown. In the newly hatched young the tarsus is much lighter. On June 23, while visiting the nest of a Black-bellied Plover, I came across a pair of Dowitchers that from their actions appeared to have young. Not wishing to stop at the time, I passed on, but on returning several hours later, found them again in a marsh at the foot of a long, low hill. When I sat down to watch, one bird wheeled about me calling, and then flew off down the valley. The other bird I could not at first locate, but soon saw it flying about the hillside, chirping. I noticed that as this bird passed



over a certain spot, it would hover about fifteen feet above the ground, giving a whistling trill. After a few minutes it dawned on me, that each time it hovered to give this call, it was a little farther up the hillside. When I moved up toward the top of the hill, the bird lit close by, scolded for a while and then commenced the same performance as before. In this way in about half an hour the Dowitcher and I had crossed the hill from one marsh to another, a distance of about six hundred yards. During all this time its mate had appeared only twice, when it flew by calling and then disappeared again. Finally the bird I was following lit in the marsh at the far side of the hill from where we had started, and began running short distances, stopping and then running on again. Watching through some field glasses, I soon saw a young one following at its heels. Rushing down suddenly, three downies were found hiding with their heads stuck into holes or depressions in the moss. They appeared to be several days old. Evidently the old Dowitcher had led these young ones across the hill by simply hovering over or in front of them and calling. The bird was collected and proved to be a male.

Just what the relation of the male and female to the eggs and young is in this species it is hard to say. From the experience above I believe the male does nine-tenths of the work in caring for the chicks. I think this will probably prove true as to the incubation of the eggs as well, but that the female takes some share in the hatching seems probable, as one collected in the vicinity of a nest showed incubation patches.

A practically fully fledged young bird was collected July 29.

Two unsexed birds each weighed 4 oz.

**Canutus canutus.** KNOT.—At Hooper Bay this bird was seen only once, when on May 23, Murie shot a male which he found feeding with a flock of Aleutian Sandpipers. On August 14, two birds of the year were collected at Golovin Bay, Norton Sound.

**Arquatella maritima couesi.** ALEUTIAN SANDPIPER.—The first Aleutian Sandpipers were seen on May 18 and by the next day they were found to be common. While some were seen on the tundra, the majority seemed to favor the beach, where they would feed until the tide came in and then sit around on the ice lining the shore until their feeding ground was again uncovered. On May 23 a large flock was seen, but after that none were noticed until July. On the sixth of that month a single bird in very worn plumage was collected. The next day several more were encountered. On the eighth we left for the tundra back of the coast and no more were noticed until July 23, when an adult male was collected. On July 30, the first fully fledged young were taken. These still showed signs of down adhering to the feathers on the back of the neck. From this spring migration of *A. m. couesi* passing Point Dall, it would seem that this species must breed on the Bering Sea coast north of the Alaska Peninsula. Nothing definite was learned, but some of the natives about the head of Igiak Bay claimed the bird nested sparingly in the little range of mountains there.



**Arquatella maritima ptilocnemis.** PRIBILOF SANDPIPER.—Out of sixteen specimens of the Pacific races of *Arquatella maritima* taken by the writer, two appear to belong to this subspecies. Compared with a series of fifteen Pribilof Sandpipers borrowed from the Biological Survey, these showed no appreciable difference. Both were males, one taken at Point Dall on May 23, and the other at Igiak Bay on July 23.

**Pisobia maculata.** PECTORAL SANDPIPER.—These Sandpipers seemed to arrive at Point Dall all at once. Up to May 20 none had been seen, but on the 21st they were found to be common all over the tundra. Immediately on arrival the males started their booming courtship. This is so well described by Dr. E. W. Nelson in 'The Natural History of Alaska' that it will not be attempted here. Two points about this courtship were noticed, however, which he does not mention. When the male rises in the air to boom, in sailing to the ground he throws his wings up over his back, much in the same manner as tame pigeons when descending from a height; also a male which flew by with pouch extended was noticed to jerk his head up and down as he gave his call. The bill was partly open and he gave the appearance of swallowing air to inflate his throat. As it is the esophagus which is inflated and not the windpipe, this in all probability is what he does.

The first eggs were found on May 27. The nests are built on the drier hillocks and hillsides, but generally close to some marshy spot. They consist simply of round depressions in the moss, concealed in a tuft of grass. On arrival the females were much shyer than the males, and at nesting time they become very shy indeed. If the nest was approached they would slip off quietly, showing little concern, when the intruder was fifteen or twenty yards away. Unless one happened to have his eyes on the exact spot which the bird flushed from, the eggs were very difficult to locate. Common nester though this bird was, very few nests were found by the white members of our party, although the Eskimos were adept at the game. The incubation period seems to run from twenty-one to twenty-three days. A nest found May 31 with the complete set of four eggs was hatched on the morning of June 21. Another nest containing four eggs, from which the old bird was flushed, was found on June 2 and hatched June 25.

The first young were found on June 21. Contrary to their habits when there were only eggs in the nest, the mothers now showed great concern for their young. At one time Murie caught some newly hatched young, and holding his hand containing them extended on the ground, induced the old bird to come up and brood the chicks. She was so tame that he caught and banded her without difficulty. The male seems to take no part in incubation or care of the young. He was often seen to join a female driven from the nest, but only for purposes of courtship, as he would start booming immediately and chase her about. Before the eggs began to hatch, male birds seemed to disappear from the tundra. There was

never more than one bird seen with the young. Thirty days seemed to be about the time necessary for the chicks to mature, as by July 20 fully fledged young were seen commonly about the tundra.

An unsexed bird weighed three ounces and a half.

**Pisobia bairdi.** BAIRD'S SANDPIPER.—On June 5, Brandt brought in a female of this species which he had shot on the tundra near the end of Point Dall. It had incubating patches and a set of deserted eggs was found a day or so later in the same vicinity, which appeared very small for eggs of the Pectoral Sandpiper. It may be that this was a stray nest of Baird's.

In July when we visited the Askinuk Range, this Sandpiper was found to be fairly abundant there. From July 10 to 16, half-grown young were seen fairly commonly about the higher ridges. Several old and young were collected. Judging from where they were found, it would seem that they nest about the swampy spots towards the top of the ridges, at an elevation of about a thousand feet. Evidently the male shares in the care of the young at least, as one was collected while attempting to distract our attention from a half-grown bird.

A fully fledged young of the year was collected on August 26 at False Pass, Alaska Peninsula.

**Pelidna alpina sakhalina.** RED-BACKED SANDPIPER.—One bird was seen May 12 flying along the coast, and by the 15th the species was common on the tundra. They started mating at once, the males flying about and whistling "Tsee, Tsee, Tsee." One note uttered by this Sandpiper as he hovered in the air reminded me very much of the call of the little marsh tree-frog, which is such a common sound every spring all over the central states. Excepting the Western Sandpiper and the Black Turnstone the Red-backed Sandpiper was the most abundant nester in this region. It kept entirely to the low lands around the tide flats or tidal creeks and seemed to prefer places where a certain kind of coarse marsh grass grew. The nests were hidden in the grass. Both parents staid by the nest as well as with the young. The one off duty always gave warning while an intruder was still a distance off, and the brooding bird quietly slipped off the nest. This made the eggs of this bird among the most difficult to find. The first eggs were found May 27 and the first downies on June 19. A very belated brood of newly hatched chicks was found on July 22. A parent bird that was brooding four young in a nest was collected and proved to be a male. It had large incubation patches. Fully fledged young with spotted sides to their breasts were seen on July 23.

**Ereunetes pusillus.** SEMIPALMATED SANDPIPER.—The Semipalmated Sandpiper was first noticed on May 19. It was not a common nester about Hooper Bay, and was found only in a very restricted strip of country at the end of Point Dall. Here in the narrow line of sand hills bordering the sea a few pairs made their home. Their flight song was easily distinguishable from that of the Westerns which were nesting in the same

vicinity. The downy young were a lighter edition of their Western cousins, but as in the old birds, the bill was much shorter and broader.

The first nests were found on June 5. The eggs were laid in a slight hollow generally made in the shelter of a small tuft of grass. The first newly hatched young were seen on June 28. Both birds of a pair collected with their young had incubation patches, so they evidently share the nesting duties equally.

**Ereunetes mauri.** WESTERN SANDPIPER.—This little Sandpiper first made its appearance on May 14, when several flocks were seen flying along the edge of the shore ice, and alighting on the small spots of ground showing through the snow. The next day it was found to be common all over the tundra. The birds immediately commenced to pair, the males sailing on set wings, about twenty feet above the ground, as they gave their little trilling whistle. On May 25 two nests were found, each containing three eggs. Three days later nests were everywhere on suitable ground, as this was the commonest of the nesting Limicolae. Unlike most of the other Sandpipers, this species did not choose the wet, marshy spots, but laid its eggs on the hillsides and the higher dry spots of the marsh. The nests were quite deep hollows in the moss in the shelter of small tufts of grass. Both birds of a pair collected with their newly hatched young showed incubation patches, so evidently both sexes incubate. They are very solicitous of their eggs and young. Generally the sitting bird would slip off the nest when an intruder was twenty-five or thirty yards away and fly about in front of him. If you located the nest, however, it would come up close, feign a broken wing and give plaintive little peeps as it fluttered about. Some pairs, however, would simply watch from a distance.

On June 15 the first newly hatched young were found. The parents were very solicitous and flew about twittering anxiously. Soon other old birds joined them and seemed just as anxious as if the young were their own. This habit of these Sandpipers in joining forces to help their neighbors was very noticeable both before and after the eggs had hatched. By June 30 half-grown young that could already fly for a few yards were seen. Western Sandpipers with their chicks were everywhere, and during a walk around the tundra you had a constant attendance of anxious mothers and fathers wheeling about. Eggs were still being found on July 5. By July 18 the mud flats were covered with fully fledged young.

The incubation period for this species seems to be about twenty-one days. A nest found on May 26 with four eggs, hatched on June 15 late in the evening. Another found on May 29 with three eggs in it, had four eggs on May 30, and three young and a pipped egg on the evening of June 19. The rapidity with which these birds lay and hatch their eggs and raise their young is very remarkable. In sixty days from their arrival on the nesting grounds, the young are full grown and taking care of themselves.

**Crocethia alba** SANDERLING.—Only seen once, when on May 23, a

pair and a single individual were seen on the beach at the end of Point Dall. One was collected.

***Limosa lapponica baueri*.** PACIFIC GODWIT.—The Pacific Godwit first made its appearance on May 15, when one was seen flying across the snow covered tundra. The next day more were seen and within a day or so they had become common. At first the birds were very wild, but within a week they became much tamer.

This species was a common nester about Hooper Bay. The first nest containing three eggs was found on May 25. It seemed to prefer the drier hillsides for nesting sites, simply hollowing out a hole in the moss. The birds were very close sitters and would not leave the nest until approached closely. Both birds took part in the incubation and also in the care of their young. They were very noisy. While one incubated, the mate generally stood watch near by. When any one approached their territory, he was met some little way off by the sentinel, who flew about scolding and screaming, and would not leave you until you were a safe distance away. On one hill there was a nest which we were never able to locate. The male generally seemed to be on guard at this point, and he would meet you when you were a quarter of a mile away and escort you until you were over the hill. If you sat down to rest he would alight on a tussock about twenty yards away and deliver an oration on what he thought about the intrusion. So canny was he in coming so far to meet intruders that it was impossible to decide the most likely place for the nest.

These Godwits showed a great variation in their plumage. A few males were very red-breasted, but the majority were mottled red and white. Females were much whiter-breasted but showed great variation also. On May 21 a female still in full winter plumage was shot out of a flock. This variation in plumage does not seem to be due to immaturity, as the lightest-colored female in my collection was shot as she flushed from her nest.

On June 1, a nest was found containing five Willow Ptarmigan eggs and three eggs of the Pacific Godwit. Visiting it the next day it was found to contain four eggs of the Godwit. The Ptarmigan eggs were underneath, so evidently the Godwits had driven off the Grouse and taken possession for themselves. About a week later this nest was found to be deserted.

On June 19, the first downy young were found. On July 23 a family party of two adults and three fully fledged young was encountered. Even though the young were fully grown and able to take care of themselves, the old birds were just as solicitous as if they were downies, and made a great fuss. The downy young are pale fulvous buff. There is a black line from the base of the bill to the eye, the crown and a greyish black streak down the back of the neck, while the back and rump are mottled with black. Tarsus blue gray, bill horn with the base dull flesh. Iris brown.

These Godwits seem to leave for the south very early. On July 3 birds were noticed in small flocks that gave the appearance of getting ready to

leave. Probably these were non-breeders or pairs whose nests had been destroyed. By August 1 very few Godwits were to be seen.

Weights of seven males were 9 oz., 9 oz., 7 oz., 10 oz., 9 oz., 11 oz., 9 oz.; and of four females 15 oz., 14 oz., 1 lb., 12 oz.

**Totanus melanoleucus.** GREATER YELLOW-LEGS.—First noticed when Murie saw one at the head of Igiak Bay on June 18. A pair was collected by the writer July 3 at Point Dall. They were evidently preparing to move south. Another was seen July 10 at the head of Igiak Bay, and on August 8 another at the head of Hooper Bay.

**Heteroscelus incanous.** WANDERING TATTLER.—This Sandpiper was not seen in the vicinity of Hooper Bay. However, on August 15, while I was spending the day at Topkok Bay, Norton Sound, two were seen and collected. One was an adult, the other a young of the year. Several more young of the year were seen about Cape Nome a few days later.

**Numenius hudsonicus.** HUDSONIAN CURLEW.—This bird was rather uncommon. The first was noticed on May 17 and on May 21 one was collected and another seen. No more appeared until June 27 or 28, when a pair was noticed. Every day after that Hudsonian Curlew were seen more plentifully until by July 5 there were fifteen or twenty feeding regularly on the tundra near the schoolhouse on Point Dall. The three specimens taken were females, one with what appeared to be large incubating patches, so some of them were probably breeding birds whose nests had been destroyed.

On July 8 we left Point Dall for a trip to Igiak Bay to the north, and the tundra back of it and Hooper Bay. Here toward the last of July more Curlew were seen and from their short whistling call some were identified as Hudsonian. They were busy feeding about the tundra. On August 5 a specimen was taken which proved to be a fully fledged young of the year. It differs from the adults mainly in its very short bill, only 59 mm., its generally more tawny coloration, and in finer dark shaft markings on the feathers of the neck and upper breast.

A female weighed 1 lb. 13 oz. and another unsexed bird 15 oz.

**Numenius tahitiensis.** BRISTLE-THIGHED CURLEW.—It seems this Curlew has been recorded only three times from the North American continent, first a specimen taken by Biscoff on May 18, 1869 at Fort Kenai, Kenai Peninsula (not Kadiak Island), second one from St. Michael's taken by E. W. Nelson on May 24, 1880, and lastly one taken by the Townsend Expedition on the Kowak River, August 26, 1885.

During the spring migration only one individual was seen. This was a female shot on May 22. It flew past me as I was walking across the tundra, and readily returned to an imitation of its call. On July 6, while walking along the edge of the tidal flats, three Curlew were flushed. Their call was very different from that of the Hudsonian, and again at my attempt to imitate it, two of the birds turned back and were collected. Both proved to belong to this species. No more were seen until the



latter part of July, when we started up the Kokechek River running into Igiak Bay and immediately commenced to see Curlew. On account of other work no specimens were secured for some days, but I believe from their appearance and call that some of these at least were Bristle-thighed Curlew.

By the end of July we had entered the Kashunuk Slough and travelled down it until we were about twenty miles from where it enters Hooper Bay. At this place was an Eskimo village where we stopped for a few days to have a Goose drive; and it was here that we saw the Bristle-thighed Curlew in abundance. On July 31 a pair was seen and collected, and on August 3 one more was taken. August 4 was the big day, as several hundred of these birds were seen on the tundra feeding on blueberries. About a dozen were taken by our party, and I believe I personally saw over a hundred, while another member of the expedition, who was off in another direction, estimated that he saw three times as many. All the specimens taken were old birds.

The call and the appearance of this species are entirely different from that of the Hudsonian Curlew. The latter gives a very short whistling call, which is roughly as follows:—"Whe,-Whe,-Whe,-Whe." The former on the other hand has a call very similar to one of the Black-bellied Plover and sounds something like "Wheeu-who." In appearance the Bristle-thigh is tawnier above and has a very reddish brown unbarred rump, which is a very good field mark. On August 21 at Cape Nome a flock of three and another of five were seen. The three were collected and proved to be fully fledged young of the year. They are tawnier on the chest, flanks and upper parts than the adults. It can hardly be doubted that the main breeding ground for this species is somewhere in Alaska, probably above the timber line on some of the mountain ranges.

In twelve adult specimens at hand there seems to be a great variation in the length of the bills. Perhaps this is due to age. The extremes of eight adult females were 84 and 101 mm., the average being 90.1 mm. The extremes of four adult males were 72 and 98 mm., with an average of 87.75. Two immatures, male and female respectively, had bills measuring 73 mm., and 58 mm. The sex of the bird in the flesh is indicated by the much slenderer more tapering bill of the male.

The weight of one female taken in the spring migration May 22, was 14.5 oz., that of a male and female taken on July 6, 1 lb. and 1 lb. 2 oz. respectively. The weights of others taken in the fall migration from July 31 to August 4, when they had been feeding on berries and were very fat, were as follows:—Five females 1 lb. 2 oz., 1 lb. 7 oz., 1 lb. 7 oz., 1 lb. 7 oz. and 1 lb. 4 oz.; two males 1 lb. 4 oz. and 1 lb.

**Squatarola squatarola.** BLACK-BELLIED PLOVER.—Black-bellied Plovers were the first shore-birds to make their appearance in the spring. A single bird was seen on May 9, and small numbers kept arriving every day until by May 15 the species was common. They were always very wild and would never allow a close approach.



They were very common breeders. On May 28 six complete sets of eggs were found by the natives and four more incomplete ones located. The eggs were deposited in little hollows in the short moss on top of the knolls and hills. No concealment was attempted. One bird of the pair, however, was always on watch at some high point and gave warning before an intruder approached within several hundred yards of the nest, whereupon the sitting bird immediately left the eggs. On one occasion I attempted to watch a bird return to its nest, hiding with a pair of field glasses behind a hill about a hundred and fifty yards from where I suspected the nest to be. One bird, however, (I believe the male) was too much for me, for he soon flew over to where I was and saw me lying there. He immediately redoubled his warning calls, and his mate, who had been sneaking about as if trying to slip back to the nest, rejoined him. One nest was found within ten feet of that of an Arctic Tern.

The first downy young were seen on June 23. They were still in the nest and both parents showed great concern. Old and young were collected, and both the adults showed brooding patches, so evidently they share in the duty of incubation as well as in the care of the young.

Weights of four males collected were, respectively, 8 oz., 9 oz., 10 oz. and 8 oz.; that of one female was 7 oz.

***Pluvialis dominicus fulvus.*** PACIFIC GOLDEN PLOVER.—The eight specimens taken by the author are referred to this form because of the measurement of the wings and the fact that two half-grown young are a rich golden color on their upper parts.

This was never a common bird. It was noticed first on May 16, when one was collected. From then until the first days of June, small parties were seen every few days. One specimen collected, a female, was practically in winter plumage. Its ovaries seemed to be as large as those of females in full breeding dress. Others were noticed which were not in full plumage.

The Golden Plover did not breed about the low tundra, but confined its nesting to the Askinuk Mountains, a small range at the head of Igiak Bay. Here the latter part of June, Brandt took one or two sets of eggs. In this same range on July 16 a pair of half-grown young was taken. Several days previously two pairs of Golden Plover had been located, which by their excited actions appeared to have young. On this day, on our approaching the spot occupied by the first pair, one adult came by, calling excitedly. Although several hours were put in fruitlessly searching for the young, the other bird of the pair did not put in its appearance. Leaving we went over where the second pair had been seen. Here also only one adult could be found. After some search the young were discovered and the old bird collected with them. It proved to be a male. It would seem a possibility that when the young are partly grown, the female leaves them in the care of the male.

***Charadrius semipalmatus.*** SEMIPALMATED PLOVER.—This Plover

made its appearance on the same day as the Semipalmated Sandpiper, May 19. It never became at all common, but kept to the strip of beach bordering the sea at the end of Point Dall, where a few pairs nested. Brandt took his first set of eggs on June 1. On July 4, the writer found a nest of eggs which hatched on July 7. The nest was simply a hollow in the sand, lined with a little grass, and located alongside of a piece of driftwood. The old bird would slip off the nest at my approach and run quietly about watching me. When the young were hatching both parents became a little more anxious, but never showed as much concern as most of the other shorebirds. The adults were collected and both had incubation patches.

**Aphriza virgata.** SURF-BIRD.—The Surf-bird was seen only once. On May 18, while I was standing on the beach behind a stranded ice cake, one flew by. It returned to a whistle, alighting on the beach so close as to make identification certain. Unfortunately it was missed as it flew by.

**Arenaria interpres morinella.** RUDDY TURNSTONE.—On May 15, Du Fresne shot the first bird of this species. He had found it sitting humped up on a log showing through the snow. The next day a pair was seen and after that date they were noticed constantly. On May 28 the migration still must have been going on, as a flock of about twenty was seen associated with six Golden Plover.

This species was not rare at Hooper Bay, but nested only in the flats bordering the narrow strip of sand dunes which stretched along the end of Point Dall. Nests were not found over a quarter of a mile back from the coast, and this species was not seen later on in the tundra back of Hooper Bay and Igiak Bay, where its black cousin was common. The first eggs were found May 29, and the first downy young on June 25, but these seemed to be about a week old. On June 26, four young not over a day old were collected. June 27, a nest with fresh eggs was discovered, evidently a second laying. The nests were slight hollows lined with a little grass and situated on the short moss in the drier parts of the marsh. The old birds did not sit close but quietly left their nests on the approach of an intruder. The young are taken care of by both parents, who showed much noisy concern.

Ridgway (Birds N. & Mid. Am., pt. 8, p. 51) gives the color of the upper parts of the downy young of this species as "light drab to drab-gray, irregularly mottled with black." This does not check very well with the specimens secured on this trip, of whose identification there can be no doubt, as the parent birds were taken with the young. Eight specimens are available, four newly hatched and four about a week old. All have the upper parts chamois (Ridgway's Color Standards) mottled with black. Perhaps the specimen described by Mr. Ridgway was wrongly identified or in a very faded condition.

About August 10, when our party was travelling in a small schooner

from Hooper Bay to St. Michael, a small flock of Turnstones coming from the north passed our boat after circling it once or twice. Again on August 25, when the S. S. *Victoria*, en route from Nome to Seattle, was about one hundred and fifty miles north of Unimak Pass, three of these birds after circling lit on the life boats on the upper deck. Both these small flocks were seen to be flying just above the surface of the sea as they approached. Evidently migration is not always carried on at a high elevation.

A male weighed 3.5 oz. and two females 4 oz. and 3.5 oz., respectively.

***Arenaria melanocephala*.** BLACK TURNSTONE.—The first of these birds were noticed on May 16, when two were taken as they flew by a small snow-water pond on the tundra. Two days later, on the 18th, this species was very common. Next to the Western Sandpiper, it was probably the commonest as well as the noisiest wader nesting on the tundra. The first nest was found on May 28, and the first downy young on June 20. Nests were everywhere in the lower marshy parts of the tundra, but they were not found in the marshy spots in the low hills or amongst the sand dunes bordering the ocean where the Ruddy Turnstones laid their eggs. The nest was always situated in the vicinity of a pond, often on the very edge of the water, but sometimes back on a little knoll thirty or forty yards away. No attempt at concealment was made, it being a slight hollow in the ground, lined with grass, and situated where the herbage was so short and scant that there was nothing to hide the eggs. The Turnstones had the same habit as the Plovers of quietly slipping off their eggs when an intruder was quite a distance away, and generally seemed to show no concern when the nest was approached; however, when the young were hatched, the old birds showed great anxiety, and if you imitated the peeping call of the chick, would fly about calling wildly.

So far as the writer can ascertain, the downy young of this species has hitherto been unknown. Below is given a description of a newly hatched chick. Colors in capitals are from Ridgway's 'Color Standards'.

Above mottled black and Cream-buff, the black strongly predominating. Line from base of bill extending over and to the center of the eye Cream-buff. Distinct loreal streak of black from base of bill to eye (some specimens also have below this loreal stripe a black spot at base of lower mandible). Lower breast, abdomen and a very small area on chin clear white. Upper throat Cream-buff. Neck and upper breast mixed black and Cream-buff, but without distinct mottling. Bill dark horn, iris brown, legs and feet light horn with fleshy tint. Compared with absolutely identified newly hatched chicks of *A. i. morinella*, downy young of this species have a much darker appearance. On the upper parts the buffy colors are more in the form of specklings, while in *morinella* these colors are more like blotches. *A. melanocephala* also has a very distinct dark band across the chest, while in the other species this band is very faintly indicated.

Both male and female take care of the young, but unfortunately no evidence was obtained as to whether both sexes shared in the incubation. With regard to the incubation period, the following data were obtained, which seem to show that the eggs hatch in from 21 to 22 days.

1. Nest found on May 31 with four fresh eggs. The evening of June 21 this nest contained three young already dry and one pipped egg. On the morning of June 22 the last egg had hatched.

2. Nest found May 31 with three eggs. On June 1 there were four eggs. At noon of June 22 eggs unhatched. At 4 P. M. June 23, nest was empty and the young had disappeared from the vicinity.

A male weighed 4 oz.

**Lagopus lagopus lagopus.** WILLOW PTARMIGAN.—On our sled trip from Nenana to Hooper Bay, this Grouse was not encountered until we reached the Kuskoquim Mountains, where we found it very plentiful. It was generally encountered in flocks of from fifteen to a hundred feeding among the dwarf willows. A few males shot on April 5 had an occasional brown feather showing on the head and neck. The morning of April 24 we left Mountain Village on the Yukon and cut across the tundra for Hooper Bay, a journey which took us four days. For the first two of these we encountered Ptarmigan everywhere along the willow-bordered sloughs and creeks. The hens were still white, but the heads and necks of the cocks were about a third into the red spring plumage. As we approached the coast and the willows became scarcer, these birds were no longer seen.

On May 9, the ground about Point Dall was beginning to show in spots through the snow and the first Ptarmigan made their appearance. Two days later they were common. Each male now took possession of a little spot of bare ground, whence he sent out his challenges, "*Com-ere, Com-ere, Go-bec, Go-bec.*" Between calls they would bob their heads as if they were pecking at the ground, or jumping about six feet into the air, glide down to the earth, cackling as they descended. The hens seemed to have but one call, a cackle similar to that of a tame chicken. Often two cocks were seen chasing each other around over the tundra, but only rarely would they seem to stand and fight it out. In the evenings and early mornings these birds were especially noisy, and often it was no great stretch of the imagination, what with the calls of the waterfowl, to imagine oneself in some great barnyard. About this time the Eskimo boys began to range the tundra with their bows and arrows, and many an unwary cock and sometimes a hen was killed by the blunt shafts of these eight and ten year old marksmen.

Several times while we were sitting on the edge of the ice along the coast watching the migration of the Eiders, Ptarmigan were seen to leave the land and fly directly out over Bering Sea. None were ever noticed returning to land. Perhaps they mistake it for some large lake. Numbers must perish in this way, although ice cakes being numerous upon which they can rest, it may be that many make their way back to the shore.

Toward the latter part of May the hens became very shy, skulking and hiding in the moss and grass. On May 26 the first nest was found. The Ptarmigan place their nests on some dry knoll or hillside, making a hollow in the moss, lined with a few leaves or bits of grass. Clutches run from eight to twelve. The hens are very close sitters, and with care one can often touch them before they will leave the nest. At this time they are rather ragged looking objects, their breasts being practically bare of feathers. The males stand watch a short distance away, and while they do not show any anxiety or pugnacity toward a human intruder, it would seem they are very jealous of the approach of other birds, as witness the episode detailed under the account of the Little Brown Crane.

Newly hatched young were first found on June 22. The incubation period seems to last about twenty-two days. A nest found on June 2 with eleven eggs had twelve on June 3, and on being visited on June 25, it was found to be empty. The chicks are very precocious. One day a hen was flushed from a nest containing two eggs and eight youngsters still damp. Hardly had she left when every downy scrambled weakly from the nest and attempted to hide in the grass. The minute they were replaced, out they would go again, until finally they became tired out and stayed in the nest. Toward the end of June broods were constantly encountered about the tundra. Both parents were always with them and the cock was especially combative, although discretion always got the better part of valor. The young after running a few feet would suddenly disappear, whereupon the hen would join the male in threats and attempts to lead one off. It was amusing to imitate the peeping of a chick and watch the cock go into a frenzy, ruffling himself up, making short dashes here and there, and in unmistakable language telling you just what he was going to do if you did not get away from his children. After a few minutes of this, both birds would be worn out and would retire a short way to watch for your next move. By the 22nd of July the young were about a third grown and had begun to shed their first brown primaries and grow their new white ones. The adults were then in the midst of shedding their toe nails.

Weights of two males collected were 1 lb. 5 oz. and 1 lb. 2 oz.; those of two females 1 lb. 5 oz. and 1 lb. 9 oz.

**Lagopus rupestris rupestris.** ROCK PTARMIGAN.—First encountered on our trip from Nenana to Hooper Bay in the Beaver Mountains on April 6. There as we spent a day visiting a reindeer camp, this Ptarmigan was found on the highest benches near the rocky peaks. Specimens shot proved to have been feeding on small leaves of Labrador tea (*Ledum*) and buds of the dwarf birch. The latter constituted ninety per cent of the crop contents.

On May 18, Murie killed one of these Ptarmigan sitting on the shore ice at the end of Point Dall. It was still in winter plumage, and had evidently strayed from the Askinuk Range about twenty miles away.



This Grouse was found to be fairly common in the Askinuk Range about July 10. Broods of from one to eight were seen, already about the size of half-grown Quail, and able to make short flights. Even as early as this, they had just begun to shed their brown first primaries, and the tips of a few of the new white ones were beginning to show. The adults had about completed the shedding of their toe nails. In this locality these Ptarmigan range practically down to the sea level. Although seldom found on the flats, they were often encountered a few hundred feet up the mountain sides. No brood encountered had a male in attendance, so evidently they do not share in the care of their young.

6 Scott St., Chicago, Ill.



NOTES ON THE BIRDS OBSERVED IN THE ALTA LAKE  
REGION, B. C.

BY K. RACEY.

DURING the past five years the Alta Lake region has been visited from time to time and numerous notes made and birds collected in different places and at varying altitudes.

This interesting and little known district can be more particularly described as lying between Maguire and Pemberton Meadows. There is a chain of lakes which lie in the valley, Alpha to the west, then Nita, Alta, Green and Lost Lake, all of which are glacial with the exception of Alta Lake, and are fed by numerous mountain streams having their sources in the glaciers and snow fields of the surrounding mountains. Alta Lake is not glacial, but is largely fed by springs and remains clear all the year round. Its old name of Summit Lake aptly describes it, as it is on the height of land in the Cascade Mountain Range. It discharges at both ends, the southern end into Nita Lake and the northern into Twenty-one Mile Creek and thence into Green Lake. Cheakamus Lake lies in the valley between Garibaldi, Whistler and Red Mountains. From this lake Cheakamus River flows westerly to Maguire and then southward through the wild and beautiful Cheakamus Canyon to Squamish where it empties into Howe Sound. The altitude of Maguire, which is seven miles south of Alta Lake, is 1700 ft., Alta Lake is 2200 ft. and from that point there is a gradual decline to 700 ft. at Pemberton, which is only about twenty-two miles north of Alta Lake. The whole country is extremely rough and rugged, with range upon range of snow capped mountains rising in every direction to heights of from 7000 to 8000 ft. above sea level. By referring to a map it will be noted that this region lies midway between the wet and dry belts. In the summer of 1924 particular attention was paid to the nesting birds and much information was gathered in the higher altitudes where many birds were found nesting and rearing young at and above timber line in the great open meadow stretches which but shortly before our visit in June were covered with snow and ice.

The following list of birds collected and observed is still very incomplete, but it embraces eighty different species and sub-species.

**Aechmophorus occidentalis.** WESTERN GREBE.—A flock of these birds numbering several hundred arrived at Alta Lake August 28, 1923, spent the day on the lake resting and feeding and late in the evening departed in a southerly direction. One solitary bird was seen on the same lake July 2, 1921.

**Colymbus holboellii.** HOLBOELL'S GREBE.—Two seen on Alta Lake, September 2, 1922.

**Colymbus auritus.** HORNED GREBE.—One seen on Nita and two seen on Alta Lake September 1, 1921. A pair of these birds seen each summer on Alta Lake.

**Gavia immer.** LOON.—A pair seen every summer on Alta Lake. A nest with two young in the down was found at Lost Lake by Mr. Phillips of Rainbow Lodge. On June 23, 1924, when out fishing in the evening on Alta Lake two of these birds followed our boat and showed considerable distress and anxiety, especially when we were near the large water-lily beds on the east side of the lake. Several times they approached within twelve or fifteen feet of our boat.

**Sternula hirundo.** COMMON TERN.—Flocks seen on several occasions during the latter part of the month of August, 1923 and 1924, but only remained about the lake for a few days.

**Larus sp.** GULL.—A few seen every summer flying over the lakes. August 27, 1922, three adults and three young birds seen. Believe these to be *L. glaucescens*.

**Anas platyrhynchos.** MALLARD.—Only seen on Green Lake where several pairs breed in the flats through which Twenty-one Mile Creek flows. In 1923, three broods were hatched and these numbered eleven, eight and six respectively.

**Spatula clypeata.** SPOONBILL.—One young bird seen on Alta Lake September 1, 1923.

**Clangula clangula americana.** AMERICAN GOLDEN-EYE.—July 1, 1920, two breeding females seen on Alta Lake, only one nest was found and it was in the fork of a tall dead cotton-wood tree, about fifty feet above the ground. June, 1924, three females were observed on Alpha Lake, two on Alta, one on Green and one on a small un-named lake near Green River falls. In 1922 several nested on Green Lake.

**Branta canadensis.** CANADA GOOSE.—Understand from residents about Alta Lake that honkers are quite numerous in the fall before freeze up. A flock seen above Alta Lake flying southward September 2, 1922.

**Ardea herodias fannini.** NORTHWEST COAST HERON.—One or two birds seen about the Lake shore each summer. In 1923 an injured bird was found by a visitor who took it to Rainbow Lodge where it was cared for but eventually died.

**Actitis macularia.** SPOTTED SANDPIPER.—Seen each year on Nita and Alta Lakes. In June, 1924, three pairs bred on Alta Lake, also a pair on both Nita and Alpha Lakes.

**Dendragapus obscurus fuliginosus.** SOOTY OR BLUE GROUSE.—Usually common up to timberline, but I noted a decided scarcity of these birds in June, 1924. Not more than three or four cocks heard hooting and no females or young seen until August, when a few flocks were found numbering from five to seven birds. In 1923, these Grouse were numerous and the decrease in numbers may be partly accounted for by the very large increase in the numbers of Horned Owls in the district.

**Canachites franklinii.** FRANKLIN'S GROUSE.—July 2, 1921, a hen bird with four chicks seen at 2500 ft. elevation near Nita Lake. A chick was found dead near this brood, it having been killed by some bird of prey. On July 30, 1923, a male, female and two young half fledged birds were seen on the mountain side above Alpha Lake. None were seen in 1924, although I heard that three or four were shot during the open season for Blue Grouse.

**Bonasa umbellus sabini.** OREGON RUFFED GROUSE.?—A few Ruffed Grouse seen in the swamp between Alta and Green Lakes.

**Lagopus leucurus.** WHITE-TAILED PTARMIGAN.—Five of these Ptarmigan seen above timberline between Red Mountain and Mt. Whistler (6000 to 7000 ft.). Two ~~had~~ were secured. These birds sometimes come down to Alta Lake in winter time when snow is very deep and the weather severe. At no other place did I hear of these Ptarmigan having been seen except about two miles south of Maguire where about a dozen birds were seen during the winter of 1923-24.

**Lagopus lagopus lagopus.** WILLOW PTARMIGAN.?—A prospector, Mr. John Bailiff, told me he had more than once seen a large Ptarmigan with black tail feathers, near Red Mountain.

**Columba fasciata.** BAND-TAILED PIGEON.—One seen between Alpha and Nita Lakes August 27, 1921. A rancher living at Nita Lake told me that two pairs had nested in the tall fir trees just behind his shack. June 22, 1924, a lone bird seen at Pemberton.

**Accipiter velox.** SHARP-SHINNED HAWK.—Two seen on the old Pemberton Trail above Alta Lake, July 28, 1923.

**Accipiter cooperi.** COOPER'S HAWK.—Frequently observed at Nita Lake, August, 1922. On September 2, 1923, near Rainbow Lodge a Cooper's Hawk seen striking at a Pileated Woodpecker which, however, escaped. June 23, 1924, a female taken at Pemberton, was molting from juvenal to adult plumage. August, 1922, seen nearly every day hunting along the mountain side bordering Alta Lake.

**Astur atricapillas striatulus.** WESTERN GOSHAWK.—August, 1923, several seen hunting towards evening on west side of Alta Lake. Only one seen in 1924, and that on June 16, when an adult flew within fifteen yards of our camp.

**Buteo borealis calurus.** WESTERN RED-TAILED HAWK.—Often seen soaring high in the air. August, 1922, a Red-tail and a Cooper's Hawk were seen fighting in the air above Sproat Mountain. They kept up the quarrel for an hour or more before finally separating. In 1920, a pair nested in a tall fir tree at the southern end of Alpha Lake.

**Aquila chrysaetos.** GOLDEN EAGLE.—Five observed above Cheakamus Lake, June 25, 1924. Understand from an old prospector that a pair of Golden Eagles nest on an inaccessible ledge on Red Mountain.

**Falco columbarius suckleyi.** BLACK MERLIN.—August 23, 1921, two birds believed to be the Black Merlin were seen between Alta and Nita Lakes.

**Falco sparverius deserticola.** WESTERN SPARROW HAWK.—Common everywhere up to 2500 ft. Breeds.

**Pandion haliaetus carolinensis.** FISH HAWK.—Two pairs bred between Alta and Green Lakes. The tree which held the nest near Alta Lake was cut down by a rancher, upon which the birds built again near Lost Lake.

**Bubo virginianus saturatus.** DUSKY HORNED OWL.—Very numerous and their numbers seemed to have increased with the very notable increase of mice in the district during the past four years. One evening when my family were returning to camp at dusk, one of these Owls flew down and tried to seize our small Pekinese dog and when driven off flew only a short distance away and perched on the limb of a dead tree.

**Ceryle alcyon.** BELTED KINGFISHER.—Found on all the lakes.

**Dryobates villosus harrisi.** HARRIS'S WOODPECKER.—Breeds. Scarce.

**Sphyrapicus ruber notkensis.** NORTHERN RED-BREASTED SAP-SUCKER.—Quite numerous and nests frequently found up to 2500 ft.

**Ceophloeus pileatus abieticola.** PILEATED WOODPECKER.—Several seen each year, breeds on eastern slope of Sproat Mountain.

**Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.—Common throughout the district.

**Chaetura vauxi.** VAUX'S SWIFT.—A few of these birds seen each year at Alta and Green Lakes.

**Selasphorus rufus.** RUFOUS HUMMINGBIRD.—Very numerous, especially near the lakes. Breeds.

**Contopus borealis.** OLIVE-SIDED FLYCATCHER.—Common from Maguire to Green Lake. None observed near Pemberton. Breeds.

**Contopus richardsonii.** WESTERN WOOD PEWEE.—Common. Breeds.

**Empidonax hammondi.** HAMMOND'S FLYCATCHER.—The most common of the small Flycatchers. Breeds.

**Otocoris alpestris arcticola.** ALASKA HORNED LARK.—Abundant on easterly spurs of Mt. Whistler from 6500 to 7500 ft. On June 28, a half fledged bird found among grass and rocks at edge of snow field. Its

gray and white colouring harmonizing perfectly with the stones and moss amongst which these birds nest. This young bird could only fly a few feet and would permit us to approach within a few inches before taking flight. The parent birds flew bravely at us trying to drive us away.

**Cyanocitta s. stelleri.** STELLER'S JAY.—Numerous and found breeding up to 2500 ft. altitude.

**Perisoreus obscurus griseus.** GRAY JAY.—Flocks consisting of old and young frequently met with up to 4000 ft. elevation. Were daily visitors at our camp at Mons during end of June 1923-24.

**Corvus caurinus.** NORTHWEST CROW.—Only very occasionally seen flying over lakes but numerous and breeds at Pemberton.

**Nucifraga columbiana.** NUTCRACKER.—Numerous from 5500 to 7500 ft. Two nests with young found in stunted firs at 6000 ft., June, 1924.

**Agelaius phoeniceus caurinus.** NORTHWESTERN RED-WING.—Breeds at north end of Alta Lake.

**Scolecophagus cyanocephalus.** BREWER'S BLACKBIRD.—Each summer for several years a flock of about forty birds remained about camp at Alta Lake and were regularly fed with camp scraps.

**Loxia curvirostra minor.** RED CROSSBILL.—September 1, 1921, a flock of about twenty-five seen at Alta Lake, two taken.

**Leucosticte tephrocotis littoralis.** HEPBURN'S LEUCOSTICTE.—Several flocks seen June 25, 1924, at an altitude of 6200 ft. Were feeding on insects which were numerous on the snow at that high elevation.

**Spinus pinus.** PINE SISKIN.—Very common and found everywhere up to 6000 ft.

**Passerculus sandwichensis alaudinus.** WESTERN SAVANNAH SPARROW.—One observed just behind Rainbow Lodge. July, 1923. Found breeding at 5800 ft. between Red Mountain and Mt. Whistler. June 25, 1924.

**Zonotrichia leucophrys nuttalli.** NUTTALL'S SPARROW.—Only once seen and that on September 17, 1923, when a flock of about a dozen birds were seen on the mountain side behind Mons. All were young birds and one was secured.

**Zonotrichia coronata.** GOLDEN-CROWNED SPARROW.—Several pairs found breeding on the eastern shoulder of Mt. Whistler. June 26, 1924. One male bird taken.

**Spizella socialis arizonae.** WESTERN CHIPPING SPARROW.—Found only at Pemberton Meadows, where three were seen June 22, 1924, and one taken.

**Junco hyemalis connectens.** INTERMEDIATE JUNCO?—Uncertain as to this species. Only one female taken. Quite numerous and flocks of twenty to thirty birds frequently seen on old Pemberton trail near Mons. Nest with full complement of 4 eggs found on westerly shoulder of Red Mountain. June 25, 1924, 6000 ft. altitude.

**Melospiza melodia morphna.** RUSTY SONG SPARROW.—Very common in all swampy locations near Lake shore.



***Passerella iliaca altivagans.*** ALBERTA FOX SPARROW.—Numbers found breeding June 24 to 27, 1924, between Mt. Whistler and Red Mountain, west of Fitzsimmons Creek at an altitude of from 5500 to 7000 ft. The wonderful song of these birds is extremely sweet and in the mornings we could hear it regularly from the clumps of stunted fir trees in every direction.

***Zamelodia melanocephala.*** BLACK-HEADED GROSBEEK.—Only met with at Pemberton where an adult male was taken.

***Piranga ludoviciana.*** WESTERN TANAGER.—Frequently seen up to 3000 ft. at Pemberton.

A nest with young was found in a fir tree about thirty feet from the ground June 22, 1924.

***Petrochelidon l. lunifrons.*** CLIFF SWALLOW.—Found breeding in the barns on Mr. Barnfield's ranch at north end of Alta Lake.

***Hirundo erythrogastra.*** BARN SWALLOW.—A few seen each summer. Rather uncommon.

***Ampelis cedrorum.*** CEDAR WAXWING.—Breeds. Frequently met with in flocks during latter part of August.

***Vireosylva gilva swainsoni.*** WESTERN WARBLING VIREO.—Fairly common at Mons and Pemberton, where specimens were collected.

***Vermivora ruficapilla gutturalis.*** CALAVERAS WARBLER.—Only met with at Pemberton where they were numerous and breeding in willow swamp behind the village.

***Dendroica aestiva rubiginosa.*** ALASKA YELLOW WARBLER.—Met with everywhere but not above 3000 ft.

***Dendroica nigrescens.*** BLACK-THROATED GRAY WARBLER.—One specimen seen at Pemberton June 22, 1924.

***Dendroica townsendi.*** TOWNSEND'S WARBLER.—An adult female taken in a fir tree on the mountain side above Nita Lake July 1, 1922, altitude 2500 ft. This is the only record I have of the Townsend's Warbler in the district.

***Oporornis tolmiei.*** MACGILLIVRAY'S WARBLER.—Quite numerous and found nesting in the low bushes on the mountain sides. Not found above an elevation of 2500 to 3000 ft.

***Wilsonia pusilla pileolata.*** PILEOLATED WARBLER.—Frequently met with at both Alta Lake and Pemberton and usually in the alder and willow bottoms.

***Setophaga ruticilla.*** AMERICAN REDSTART.—Found breeding at Pemberton June 3, 1924.

***Cinclus mexicanus unicolor.*** WATER OUZEL.—Found in nearly all the mountain streams in the district and seen in Fitzsimmons Creek at an altitude of 3300 ft. June 24, 1924.

***Nannus hiemalis pacificus.*** WESTERN WINTER WREN.—Found everywhere in the district.

***Certhia familiaris occidentalis.*** CALIFORNIA CREEPER.—Two or three seen in the dense fir growth on the eastern slope above Nita Lake.



**Sitta canadensis.** RED-BREASTED NUTHATCH.—Frequently seen and heard all summer and especially between Nita and Alta Lakes.

**Parus atricapillus occidentalis.** OREGON CHICKADEE.—Common in company with Kinglets.

**Parus refescens.** CHESTNUT-BACKED CHICKADEE.—Several flocks seen on Sproat Mountain August 29, 1922. One specimen taken.

**Regulus satrapa olivaceus.** WESTERN GOLDEN-CROWNED KINGLET.—Common. A breeding male taken June 20, 1924.

**Hylocichla ustulata ustulata.** RUSSET-BACKED THRUSH.—Quite common about Alta and Nita Lakes, especially in the alder bottoms. Nests. A Thrush was found breeding at an altitude of 5500 to 6500 ft. between Red Mt. and Mt. Whistler. Its song was quite different from that of *ustulata*, but it remains unidentified as no specimen was secured.

**Planesticus migratorius migratorius.** WESTERN ROBIN.—Breeding in abundance about the Lakes but not seen between 3000 and 5000 ft. Several seen at an elevation of 6000 ft. on June 25, 1924.

**Ixoreus naevius.** VARIED THRUSH.—Common from the lakes up to 6000 ft.

On June 20, 1924, a full fledged female was taken on the eastern slope of Sproat Mt. at an altitude of 2350 ft. and on June 24 and 25 numbers of these birds were found nesting on one of the eastern shoulders of Mt. Whistler at an altitude of 5000 to 6000 ft. The loud clear whistle of these birds much resembles the whistle of the Hoary Marmot.

**Sialia mexicana occidentalis.** WESTERN BLUEBIRD.—Seen about all the lakes and found breeding on the eastern side of Alta Lake, June 18, 1924. Nest was in a broken branch of a tall cottonwood tree about 40 ft. from the ground.

**Sialia arctica.** MOUNTAIN BLUEBIRD.—One specimen only seen and that was sitting on telegraph wire on eastern side of Green Lake June 22, 1924.

3262-1st-Ave. West, Vancouver, B. C.

REMARKS ON THE ORIGIN AND DISTRIBUTION OF  
THE ZONOTRICHIAE.

BY RUDYERD BOULTON.

IN practically all parts of the globe are found the Fringillidae, perhaps the largest and most cosmopolitan group of birds generally recognized as a family. Yet in the great number of species, certain well defined subgroups may be recognized, and approximate lines of division and general characterizations may be made for each. One of these groups is that containing the Crossbills, Pine Grosbeaks, Purple Finches, House Finches, Longspurs and their allies. This group is of circumpolar distribution, and, from the fact that many more species are found in Asia than in America, it is generally regarded as having originated in the Palearctic Region, invading North America through Alaska. A no less interesting group is that of which the Buntings of Europe are typical.

We call our melodious White-throat a "Sparrow," and Song Sparrow and Fox Sparrow are well recognized names. Nevertheless "Sparrow" in the strict sense should be applied only to that group of which the House Sparrow, (*Passer*), is typical, and our White-throated and Song and Fox Sparrows are, in their relationships, Buntings.

I have no new races to propose, or ranges to extend, but I wish merely to suggest an interpretation of the origin and dispersal of that group of genera which Ridgway has called the Zonotrichiae, together with certain Asiatic genera placed in the Emberizinae by Sharpe.

The material for this study has been drawn from the data in such standard works of reference as Ridgway's 'Birds of North and Middle America,' Sharpe's 'Fringillidae' of the British Museum Catalogue, Brabourne and Chubb's 'Checklist of South American Birds,' Hartert's 'Die Vögel der paläarktischen Fauna,' and Reichenow's 'Die Vögel Afrikas.' The revisions

---

<sup>1</sup> Read at the Pittsburgh meeting of the American Ornithologists' Union November, 1924.

of *Buarremon*, *Junco* and *Arremonops* by Dr. Chapman, Dr. Dwight and Mr. Todd respectively, have also been consulted.

The Zonotrichiae are found practically throughout North and South America, and as many as nineteen genera are found north of Panama. While the lines of generic division are admittedly tentative, the relationships of the genera are fairly well established, and the possible future restriction or amplification of certain of these or the suppression of others will make little difference in such a problem as this. On plotting the ranges of each species and subspecies, one cannot fail to notice that by far the greater number of forms and individuals are found at a point about midway between the extremes of the range, namely at the southern end of the Mexican tableland. To the north are found those genera which in pattern of coloration more or less closely resemble one another, a pattern of brown, buff, gray and black streakings. Such are *Junco*, *Zonotrichia*, *Plagiospiza*, *Aimophila*, *Amphispiza*, *Spizella*, *Melospiza* and *Passerella*, while *Brachyospiza* extends south along the Andes to Tierra del Fuego. South of the Mexican plateau are found those genera which are characterized by more brilliant coloration and more diverse pattern, their plumage being green, yellow, chestnut, black and grey, and the areas of color in masses rather than in streaks. Such genera are *Melzone*, *Arremonops*, *Arremon*, *Buarremon*, *Lysurus*, *Atlapetes*, *Pselliphorus* and *Pezopetes*, while two, *Pipilo* and *Oberholseria* venture northward. The genera with which this paper is primarily concerned are those of the first group which are found principally in the Nearctic Region.

In the Old World is found a rather uniform genus, *Emberiza*, in which, in the Palearctic Region alone, Dr. Hartert places twenty-nine species. This genus ranges from northeastern Asia west through Europe and south to India and Africa. It is not found in the Indo-Malayan or Australian Regions. On the whole the various species of *Emberiza* are rather small Buntings, generally smaller than any member of the genus *Zonotrichia*, either brownish and streaked, with various patterns of white, brown, black and yellow about the head as in *Zonotrichia*, or brilliant yellow below. Those forms which are yellow below are better developed in Europe and Africa, and one of the principal characters on which the

Emberizinae is founded, the development and swelling of the palate, is most pronounced in *Miliaria*, a European and western Asiatic species, which is recognized by some as a monotypic genus, but by Dr. Hartert, placed in the genus *Emberiza*. *Fringilaria* found in the southern part of the Palearctic Region and in the Ethiopian Region differs, together with *Miliaria*, from the New World forms and less so from *Emberiza*, by having the mandibular and maxillary tomium curled inwards, which in conjunction with the development of the palate must form a most efficient instrument for cracking hard seeds.

Before proceeding with any discussion of point of origin or dispersal, I will state my hypothesis and then discuss in more detail the various reasons for believing it to be probable. The Zonotrichiae, at least the ancestral stem of the group, arose somewhere in Central America, probably between Panama and central Mexico, in the early Tertiary. One branch extended southward differentiating into that group of genera which has already been mentioned. The other branch extended to the north, crossed to Asia by way of Behring Straits, and gave rise to the group now known as the genus *Emberiza*.

First let us look at the geographical conditions which prevailed in the Tertiary Period in the Western Hemisphere. According to W. D. Matthew, from the end of the Cretaceous to the beginning of the Pliocene, North America was separated from South America at the Isthmus of Panama, and during the middle Eocene there were further divisions at Tehuantepec and at Nicaragua. Likewise, from the end of the Miocene to the end of the Pliocene, Alaska was connected with Asia across Behring Sea. In the Pleistocene however, the advance and retreat of the Great Ice Cap may have been connected with the repeated uplift and down-warp of the continental masses. The exact number of advances of the Ice Cap and the bridging of the eastern and western hemispheres at Alaska during this period is a matter of dispute among geologists today, but there is fairly good evidence that Siberia and Alaska were in much closer relation to each other during the Pleistocene, if not actually continuous.

The climate of the Tertiary period is equally interesting, for as Matthew says, "Climate and environment are more important

in the dispersal of birds, than are geographical barriers." At the end of the Cretaceous Period, there was a long era of warm, moist climate. Through the succeeding periods the temperature fell gradually at first and more rapidly later, culminating finally and abruptly in the Ice Age of the Pleistocene. Cockerell may be quoted as saying that "the climate of Colorado in the Miocene was warm and moist with no heavy snows during the winters, although the altitude was about the same as now." During the Pleistocene, a marked change occurred, periods of extreme cold being followed abruptly by periods of warm, moist climate. The interglacial periods, the Gunz-Mindel in particular were of greater duration than the glacial periods and the climate was probably warmer even than it is today. A period of rapid climatic and environmental change is much more favorable for the evolution and differentiation of species than is a monotonous environment, even though favorable, and it is during one of these interglacial periods, I believe, that the ancestors of *Emberiza* crossed from Alaska to Asia.

But why, I am sure you ask, did this extension of range take place from east to west, instead of from west to east as so many other migrations through Alaska are supposed to have done? It would of course be foolish to assume that during the period of connection there was no interchange of faunas from the two continents,—to say definitely that all movement was from America to Asia. An examination of the more distant relatives of the group Zonotrichiae discloses my reasons for thinking that it is not of Asiatic origin. The Tanagridae and Fringillidae have so many connecting links that no one has yet been able to draw a line dividing the two families which was satisfactory to all of his contemporaries. On the other hand, the closest relatives of the Fringillidae in the Old World, the Ploceidae, while admittedly an old group as shown by their retention of a primitive tenth primary, are nevertheless quite distinct. In the New World the Fringillidae have on one side the Icteridae and on the other, the Tanagridae, Mniotiltidae and Coerebidae which merge almost imperceptibly one into the other.

There are two rather radically opposed views in explaining the origin and dispersal of animals. Briefly, the two schools differ



on the following point: one postulates the theory that the most primitive forms are found farthest from their center of origin, the other that the most advanced and specialized forms are found farthest from the center of origin. It would be difficult to find two theories attempting to explain the same thing, more different than these. Personally I believe that neither one nor the other is invariable. The conditions under which the species evolved, certainly must be the controlling factors. If the environment at the center of dispersal was radically changeable, the ancestral forms would be forced to seek more favorable conditions and would be found at the periphery of the range. If the environment at the center of dispersal was uniform, then the outlying members of a species would either be driven back to their original place of origin, or would be modified to adapt themselves to new conditions, and the most specialized forms would then be found at the periphery of the range.

C. C. Adams has formulated ten criteria for the determination of centers of dispersal, and while I do not believe that set rules will solve any particular problem, it is interesting to apply these to the question in hand.

The first criterion is the location of the greatest differentiation of type, and the area where the greatest number of species is found. This most certainly is in southern Mexico where over forty species and subspecies belonging to ten genera occur within several hundred miles. Four genera occur only to the north and four only to the south.

Second, is the dominance or greatest abundance of individuals. This I believe also to be in southern Mexico.

Third is the location where the most closely related species are to be found. In northwestern Asia there are many species of *Emberiza* which differ only slightly one from another. Moreover they differ but little more from *Zonotrichia* which extends up the eastern side of the Pacific to Alaska. Some of the species in coloration and pattern might well be taken for *Zonotrichiae* and one was even described in *Junco* so similar is it to the latter genus. This seems to be an indication of the close relationship of these groups, the environment in the northern Hemisphere during the Quaternary having been such as not to have caused



radical differentiation. The primary center of closely related species seems to be, however, in southern Mexico, where within any one of the ten genera before mentioned, the species and subspecies occurring near Mexico City differ only in slight degrees of color and measurements.

The fourth criterion is the location of maximum size of individuals. The largest individuals are found in the genera *Miliaria*, *Zonotrichia* and *Buarremon*. In the case of the first two it seems to be a specialization for cold weather and migratory habit, while in *Buarremon* it may be a sign of senescence or due to uniform favorable environment.

Fifth is the location of greatest production. This cannot be answered from the data at hand, but it seems probable that the greatest production takes place in colder regions where almost universally the number of eggs laid is larger than in the tropics.

Sixth, is the continuity or convergence of the lines of dispersal. In the western states and the Canadian Rockies, *Spizella*, *Junco*, *Melospiza*, *Passerella*, *Zonotrichia*, *Amphispiza*, and *Pipilo* have their point of greatest differentiation, while in South America *Buarremon*, *Arremon*, *Arremonops*, and *Atlappetes* are most greatly differentiated in Colombia, Bolivia and Ecuador, and *Brachyspiza* occupies with its three species and thirteen subspecies the length of the Andes. It seems that the lines of dispersal are in general north and south, converging in southern Mexico, while in Asia the line of dispersal seems to run from northeastern Siberia through Europe to Africa, using as characters the development of the palate and tomium, and the change from streaked underparts and upperparts to the more uniform yellow of these areas. Under this same discussion should go the seventh criterion, the continuity and directness of individual variation and modification radiating along highways of dispersal.

The eighth criterion, is the direction indicated by annual migration routes. This is probably so modified by present climatic conditions, that little remains of the original line of dispersal. The Yellow Wagtail, the Wheatear, and the Willow Warbler, breeding in Alaska migrate back to Asia, and the Greenland Wheatear migrates to Africa through Europe. There is no trace of such migration among the Emberizinae, but they have probably

been resident in Asia a much longer time than have the Wagtail and Wheatear been in Alaska. In this connection, even though the general trend of migration is from north to south, it is interesting to note that the three races of *Zonotrichia leucophrys* may be found in winter in Lower California, and that, in general, the members of the genera breeding in the far North migrate farther south than is apparently necessitated by climatic conditions.

The ninth criterion, the location of least dependence on restricted habitat, and the tenth, the direction of dispersal indicated by biogeographical affinities, I have not been able to apply in the present case.

In conclusion, I believe that the evidence presented indicates that the group *Zonotrichiae* originated somewhere between Panama and the Rio Grande, that one branch spread south, differentiating into the group of genera characterized by *Buarremon* but retaining the general type of coloration and structure of its tanagrine-fringilline ancestor, that another group spread north, typified by *Zonotrichia*, and crossing Behring Sea at a time when favorable climate and land connection existed, probably in the early Pleistocene, gave rise to *Emberiza*.

*American Museum of Natural History,*  
*New York, N. Y.*

nk  
ly

il  
ch  
t-  
oe  
ne  
er

e-  
ed  
he

es  
na  
ng  
e-  
by  
ole  
co-



From pencil drawing by W. Rowan

HYBRID GROUSE (A) (*Tympanuchus a. americanus* × *Pedioceetes phasianellus*).

COMMENTS ON TWO HYBRID GROUSE AND ON THE  
OCCURRENCE OF TYMPANUCHUS AMERICANUS  
AMERICANUS IN THE PROVINCE OF ALBERTA.

BY WILLIAM ROWAN.

*Plates XVII-XVIII.*

ON October 3, 1925, Mr. H. J. Smale of Edmonton, a member of the Northern Alberta Game and Fish Protective League, very kindly brought me a very fine hybrid *T. americanus* + *Pedioecetes phasianellus* in the flesh. The bird, a female, was shot a short distance out of the city of Edmonton. This is only the second example of this cross known to me from the Province of Alberta. The other, also a female, shot in October, 1918, at Gough Lake in the Sullivan Lake country in the southern half of the Province, was procured and mounted by Mr. Ashley Hine, now of the Field Museum of Chicago and finally found its way to the Banff Museum. It is in perfect condition except that the right half of the tail is missing. I am indebted to Mr. Sansom, curator of the Museum, for kindly loaning me the specimen.

In view of the interest attaching to hybrids in general, and their theoretical importance in connection with some aspects of taxonomy, it seemed to me well worth while to publish a description of these two birds, particularly as they differ considerably from each other. My own specimen resembles the Pinnated Grouse more closely than the Sharp-tail, while the reverse is the case with the Banff bird.

They have one remarkable feature in common—the general scheme of the tail. Of the nine pairs of rectrices in each case, the middle pair is considerably longer than the rest, which are evenly graduated and resemble those of the normal Pinnated in size and arrangement. This is more marked in the Gough Lake bird than in the Edmonton one, which is the subject of Plate XVII. The pattern on these central feathers is, however, more typical of the rectrices of the female Pinnated than of the Sharp-tail. (See Plate XVIII.)

The chief characters of the birds are as follows:

*A.—Female, Edmonton, Alta, Oct. 3, 1925.*

Feathers on crown longer and blacker than those of either species; hind-neck, mantle, back, rump and upper tail-coverts similar to *T. americanus*; secondaries more or less similar to but lighter than *T. americanus*; wing coverts more closely resembling *P. phasianellus* but with the characteristic roundish white spots tending to broaden into bars. With the exception of the central rectrices and light barring, towards their bases, on the dark contiguous pair, the remainder are unmarked save for a terminal bar of whitish. (See Plate XVIII.) They would thus resemble those of the male *T. americanus* except that they are very much paler, being a pearly gray and retain the end bar of the female, though this is not well defined. The central pair exceed their neighbors in length by 1 cm. Pinnates are present and well developed, resembling in general those of the typical female *T. americanus*—length 3.7 cm. Chin, cheek, throat and ear-coverts richer than those of any specimens of either species in my possession. Breast intermediate between the two species, with heavy open V-shaped markings, heavier than in *P. phasianellus* and enlarging to bars on the flanks. Under tail-coverts similar to *T. americanus*. Culmen 1.8 cm. Middle toe and claw 5.4 cm. Wing 22.5 cm. Tail 9.8 cm.

*B.—Female, Gough Lake, Alta, Oct. 26, 1918.*

Crown, hind-neck, mantle and back as in *T. americanus*; rump, and upper tail-coverts intermediate between the two species; secondaries and wing-coverts as in hybrid A; central rectrices a trifle longer and narrower than in A with pattern somewhat similar. They are 1.3 cm. longer than their neighbors and, with the exception of these, slightly darker than the rest which resemble *T. americanus* female and are similar in color and pattern. Pinnates completely absent. Chin, cheek, throat and ear-coverts like *P. phasianellus*; upper breast not as heavily marked as in A but the half closed V-markings of *P. phasianellus* replaced by heavy open Vs, though smaller and somewhat more abundant than in A. Rest of ventral surface as in A, except that the V-markings are consistently smaller and more numerous and the flanks are less heavily barred; under tail-coverts even more heavily





From pencil drawing by W. Rowan

ABOVE.—HYBRID GROUSE (B)

BELOW.—LEFT RECTRIX OF CENTRAL PAIR.

1. FROM HYBRID "B". 10 × 1.4 cm.

2. FROM FEMALE SHARP-TAIL. 11 × 1.1 cm.

3. FROM HYBRID "A". 9.8 × 1.5 cm.



marked than in typical *T. americanus*. Culmen 1.8 cm. Middle toe and claw 5.0 cm. Wing 21.6 cm. Tail 10.0 cm.

The ovary of the Edmonton bird appeared to be normal in all respects for the time of year, but it was not fresh enough for critical cytological examination. It would be extremely interesting to know if these hybrids, occurring thus in the wild state, are fertile.

The skeleton was unfortunately not preserved.

While there are only two records of this cross in Alberta as far as we have been able to ascertain, it would appear to be comparatively frequent in Manitoba, and no doubt also occurs in Saskatchewan,<sup>1</sup> in both of which Provinces the Pinnated Grouse is far more numerous than it is here. I have seen two different examples in Manitoba and have heard of others on good authority. Unfortunately these are not now available.

It seems not to be generally known that *Tympanuchus americanus* is an Alberta game bird. This may, in part at least, be due to the distribution accredited to the species in the 'Check-list'—southern Manitoba and southeastern Saskatchewan. How long the species has been represented in this Province it is difficult to estimate, but some of the old-timers remember it as far back as the late nineties. Even today there are many sportsmen who are totally unaware of its existence and can not tell it when they see it. Not only has the species been established for many years, but it moreover attains its northernmost distribution in Alberta, occurring 100 miles north of Edmonton, at Lac Labish.

The distribution of the Pinnated Grouse within the Province is very curious and its habits seem to be peculiar. Except during the late fall and winter it appears to be entirely confined to the immediate vicinity of the larger lakes where it generally nests less than a quarter of a mile and often only a few yards from the water's edge. The nest is merely a grass-lined hollow, usually well concealed in coarse herbage, often on quite soggy ground. The largest clutch I have personally found numbered 14. The bird shows great variation in size and color. A specimen from Lac Labish, now in the Parliament collection, is much more

<sup>1</sup> Since the above was written, I have been informed by Mr. F. Bradshaw, Game Commissioner of Saskatchewan, that two of these hybrids are known to have been killed in the Province, but the present whereabouts of the specimens is doubtful.

richly colored than any others I have seen. Beaverhill Lake birds are smaller and darker than those from Sullivan Lake.

The distribution is patchy. The colonies are isolated, and as stated above, practically confined to lakes. I have never heard the characteristic booming nor seen the equally characteristic display, except on the water's edge. At Beaverhill Lake the performing grounds are almost invariably on sandbanks or mud-bars running right into the water. It may be this fact, the bird's devotion to lakes, that largely accounts for the prevailing ignorance as to its occurrence. Chicken shooters do not go to the lakes. These are the resorts of duck and goose shooters who on the whole rather despise the chicken hunter and his quarry, and unless a stray chicken happens to offer a good sporting target as it hurtles by unexpectedly, they leave Grouse severely alone.

Another fact that may partially account for the situation is that the Pinnated Grouse is really numerically scarce. It is here, moreover, subject to exactly the same cycles as the Sharp-tail, and in years of scarcity it is excessively rare. It is only in the years of plenty that the bird might reasonably be expected to fall to the gun. In addition to its naturally small numbers, it is warier and wilder by far than the Sharp-tail.

With regard to the subspecies represented by the parents of these two hybrids little need be said, for they can only be assumed. Our local "chicken" is *Pedioecetes phasianellus campestris*, while presumably, all our Pinnated Grouse belong to the type race, *americanus*. *P. p. phasianellus* presumably comes south to Lac Labish where it would meet with the Pinnated. In years such as the present, following on a cyclic peak and preceding a minimum, due in the next year or two, our Grouse apparently undertake considerable migratory movements, and it is just as likely that the Edmonton bird may have come down from Labish as that it should have come from elsewhere. The Pinnated Grouse does not normally occur in this neighborhood at all. As to the other specimen, from Gough Lake, it should also theoretically be represented by *americanus* + *campestris*.

Both these hybrids appear to be larger (and mine was appreciably heavier) than normal females of either of the parent species.

Dept. of Zoology, University of Alberta,  
Edmonton, Canada.

## THE REVISED CLASSIFICATION FOR THE FOURTH EDITION OF THE A. O. U. CHECK-LIST

BY A. WETMORE AND W. DEW. MILLER.

WHEN a new committee, with Dr. Witmer Stone as Chairman, was appointed subsequent to the Pittsburgh meeting to continue the work of preparation of a fourth edition of the Check-List, the present writers were delegated to draft a revised classification in accordance with present day ideas. The labors of the subcommittee entrusted with this task are now complete, and it has seemed proper to offer a draft of the arrangement as far as sub-families that it may be available in advance to those interested.

In introduction it may be said that before the first edition of the A. O. U. 'Check-List' was issued in 1886 three individual lists that summarized the bird life of the area that we assume to be North American had been in current use. Baird in 1858 published such a list in quarto form, following it with an octavo edition in more convenient size in 1859. Coues published a check-list in 1873 as a synopsis of his 'Key to North American Birds', and issued a revised edition in 1882 to bring the matter down to date. In the meanwhile Ridgway in 1881 had issued a 'Nomenclature of North American Birds'.

As both Coues and Ridgway were members of the committee of five appointed at the first congress of the American Ornithologists' Union to revise the classification and nomenclature of the birds of North America it followed that their ideas were instrumental in molding the form of the new work. The committee, until the last moment, was unable to agree on the classification to be used and finally referred the entire question to Dr. L. Stejneger, serving with the committee by invitation, with instructions to follow the Coues-Ridgway arrangement where the two were agreed, and in other cases to use his judgment as to proper procedure. As through extensive studies his views were already crystallized he was able to complete the work in a single night.

Lists published prior to 1886 had begun with what was considered the highest group, and had continued down the line to end with those considered the lowest. The arrangement adopted in the

work published in 1886 reversed this order so that the list began with the Grebes as lowest in rank of the families found on this continent and ended with the Thrushes which were held as the highest.

This first edition of the 'Check-List' at once was adopted as the universal standard for this country. Immediately following its appearance came the work of Fuerbringer, in 1888, that of Sharpe in 1891, and that of Gadow in 1893, the first and last based upon profound anatomical studies that revealed relationships hitherto unsuspected which indicated radical changes in existing systems of classification.

When the second edition of the A. O. U. 'Check-List' was prepared in 1895, the changes proposed by the authors mentioned were still too new to have been universally accepted, and no shift was made in the general arrangement. The matter was again considered in 1910, when Mr. Ridgway and Dr. Stejneger were asked to draft a new outline. At the last moment, however, the committee, mainly at the instance of Mr. William Brewster, decided to follow the old order on the grounds that proposed schemes differed widely indicating variance of opinion, and that a shift from the old order would cause confusion in the minds of those familiar with the arrangement in previous editions. An abstract of Gadow's arrangement, with the A. O. U. equivalents in brackets, was, however, given in the preface.

The arrangement of the 'Check-List' has been followed consistently in 'The Auk,' 'The Condor,' and the many popular works on ornithology that have appeared in recent years. At the same time standard technical works, such as Mr. Ridgway's 'Birds of North and Middle America,' have used a modern scheme so that confusion has resulted. As relationships indicated in the old list are in a number of cases wholly erroneous it has perpetuated false ideas from generation to generation, obviously improper procedure. Change in the present accepted order will no doubt occasion complaint but if we are to advance in our science we must assimilate modern ideas, otherwise our mechanism will assume the general utility of a stage coach in a time of automobiles and airships.

In preparing a revised classification we have taken Gadow's work as a basis and have incorporated in it various changes that



have been made by later workers. In general we have accepted changes from the present order only when they appear to us definitely established on proper grounds. When doubt seems to attach to any suggestion we have followed the older classification. Our aim has been, so far as possible, to present established modern views in a conservative manner. In the few instances where we have not been in absolute agreement as to procedure the matters under dispute have been referred for decision to Dr. Stone as chairman of the committee as a whole.

In summary we propose to group North American birds in twenty orders, as against the seventeen found in previous editions of the 'Check-List.' The sequence followed is one that seems best to illustrate the advance of the different groups from an evolutionary standpoint with due reference to specialization and adaptation for peculiar modes of life.

In studying the present arrangement it must be borne in mind always that the different groups do not represent milestones along a direct road leading from highest to lowest, but that they are the modern terminals of diverging lines of evolution connected by common ancestors in a past more or less remote. It is not difficult to place them on a plane surface where their relationship to one another may be presented in terms of two dimensions, but it is another thing entirely to range them in a single line. For the last there must be careful weighing of characters to determine those of basic value and an allocation of rank that will not clash with facts. The problems involved are often difficult and in some cases can only be settled arbitrarily.

As a final word, those who maintain collections of eggs, identity of which is based on the present A. O. U. number pencilled on each specimen, will no doubt feel a rising antagonism against the proposed drastic changes on the ground of confusion that seems imminent if under the new arrangement new numbers are assigned to all our birds. Under the present plans of the Committee such confusion will be obviated as in the new edition of the 'Check-List' it is expected that each species will bear the same number as now assigned to it, placed in brackets as at present, and no other. An appendix will include a concordance where the list will be ranged in numerical order as formerly. This will be so arranged as to serve

as an index to the position of each of the species in the present work. The old numbers will thus remain in force.

The magnitude of the task of assembling such a classification as is here given will be readily comprehended when it is remembered that it has necessitated consideration of all groups of birds, living and fossil, at present known, since our native species must be viewed on a comparative basis with the avifauna of the entire world.

In the list that follows fossil groups are omitted. Those extralimital to the A. O. U. list as at present constituted are given in brackets.

# Class **AVES**

## Subclass **NEORNITHES**

### [Superorder **PALAEOGNATHAE**]

[Order **Struthioniformes**. Ostriches]

[Order **Rheiformes**. Rheas]

[Order **Casuariiformes**. Cassowaries]

[Order **Apterygiformes**. Apteryxes]

[Order **Tinamiformes**. Tinamous]

### Superorder **NEOGNATHAE**

[Order **Sphenisciformes**. Penguins]

Order **Gaviiformes**. Loons

Family Gaviidae

Order **Colymbiformes**. Grebes

Family Colymbidae

Order **Procellariiformes**. Tube-nosed Swimmers

Family Diomedidae. Albatrosses

Family Hydrobatidae. Fulmars, Shearwaters and Petrels

Subfamily Puffininae

Subfamily Hydrobatinae

Family Oceanitidae. Long-legged Storm Petrels

Order **Pelecaniformes**. Totipalmate Swimmers

Suborder Phaëthontes

Family Phaëthontidae. Tropic-birds

Suborder Pelecani

Superfamily Pelecanides

Family Pelecanidae. Pelicans

- Superfamily Sulides
  - Family Sulidae. Gannets and Boobies
  - Family Phalacrocoracidae. Cormorants
  - Family Anhingidae. Darters
- Suborder Fregatae
  - Family Fregatidae. Man-o'-war-birds
- Order **Ciconiiformes**. Herons, Storks, Ibises, etc.
  - Suborder Ardeae
    - Family Ardeidae. Herons and Bitterns
    - Subfamily Ardeinae
    - Subfamily Botaurinae
  - Suborder Ciconiae
    - Superfamily Ciconiides
      - Family Ciconiidae. Storks and Wood Ibises
      - Subfamily Ciconiinae
      - Subfamily Myeteriinae
    - Superfamily Threskiornithides
      - Family Threskiornithidae. Ibises and Spoonbills
      - Subfamily Threskiornithinae
      - Subfamily Plataleinae
  - Suborder Phoenicopteriformes
    - Family Phoenicopteridae. Flamingoes
- Order **Anseriformes**. Screamers, Ducks, etc.
  - [Suborder Anhimae. Screamers]
  - Suborder Anseres. Ducks, Geese and Swans
    - Family Anatidae
      - Subfamily Cygninae
      - Subfamily Anserinae
      - Subfamily Dendrocygninae
      - Subfamily Anatinae
      - Subfamily Fuligulinae
      - Subfamily Erismaturinae
      - Subfamily Merginae
- Order **Falconiformes**. Vultures, Hawks and Eagles, etc.
  - Suborder Cathartae. American Vultures
    - Family Cathartidae
  - Suborder Falconi. Falcons, Hawks, Eagles, etc.
    - Superfamily Falconides

Family Accipitridae. Hawks, Eagles, etc.

Subfamily Elaninae

Subfamily Perninae

Subfamily Milvinae

Subfamily Accipitrinae

Subfamily Buteoninae

Subfamily Circinae

Subfamily Pandioninae

Family Falconidae. Falcons, Caracaras, etc.

Subfamily Polyborinae

Subfamily Falconinae

Order **Galliformes**. Gallinaceous Birds

Suborder Galli

Superfamily Cracides. Curassows, Chachalacas, etc.

Family Cracidae

Subfamily Penelopinae

Superfamily Phasianides. Pheasants, Grouse, Quails, etc.

Family Tetraonidae. Grouse, etc.

Family Perdiciidae. Quails

Subfamily Perdicinae

Subfamily Odontophorinae

Family Phasianidae. Pheasants

Family Meleagridae. Turkeys

[Suborder Opisthocomi. Hoatzins]

Order **Megalornithiformes**. Cranes, Rails, etc.

[Suborder Mesoenatides. Mesites]

[Suborder Turnices. Hemipodes]

Suborder Megalornithes. Cranes, Rails, etc.

Superfamily Megalornithides

Family Megalornithidae. Cranes.

Subfamily Megalornithinae

Family Aramidae. Courlans

Superfamily Rallides

Family Rallidae. Rails, Coots and Gallinules

Subfamily Rallinae

Subfamily Gallinulinae

Subfamily Fulicinae

[Suborder Heliornithes, Finfoots]

[Suborder Eurypygae. Sun Bitterns]

[Suborder Cariamae. Seriemas]

[Suborder Otides, Bustards]

Order **Charadriiformes**. Shore-birds, Gulls, Auks, etc.

Suborder Charadrii

Superfamily Jacanides

Family Jacanidae. Jacanas

Superfamily Charadriides

Family Haematopodidae. Oystercatchers

Family Charadriidae. Plovers, Turnstones, etc.

Subfamily Vanellinae

Subfamily Charadriinae

Subfamily Aphrizzinae

Subfamily Arenariinae

Family Scolopacidae. Snipes, Sandpipers, etc.

Subfamily Scolopacinae

Subfamily Numeniinae

Subfamily Canutinae

Family Recurvirostridae. Avocets

Family Phalaropodidae. Phalaropes

Suborder Lari

Family Stercorariidae. Skuas and Jaegers

Family Laridae. Gulls and Terns

Subfamily Larinae

Subfamily Sterninae

Family Rynchopidae. Skimmers

Suborder Alcae

Family Alcidae. Auks, Murres, etc.

Subfamily Plautinae

Subfamily Alcinae

Subfamily Fraterculinae

Order **Columbiformes**. Pigeons, Doves, etc.

[Suborder Pterocletes. Sand Grouse]

[Suborder Columbae]

Superfamily Columbides

Family Columbidae. Pigeons and Doves

Order **Psittaciformes**. Parrots, Macaws, etc.

Family Psittacidae.

Subfamily Arinae

Order **Cuculiformes.** Cuckoos, etc.

[Suborder Musophagi. Plantain-eaters]

Suborder Cuculi

Family Cuculidae. Cuckoos, Anis, etc.

Subfamily Cuculinae

Subfamily Neomorphinae

Subfamily Crotophaginae

Order **Strigiformes.** Owls

Family Tytonidae. Barn Owls

Family Strigidae. Horned Owls, etc.

Order **Caprimulgiformes.** Goatsuckers, etc.

[Suborder Steatornithes. Oilbirds]

Suborder Caprimulgi

Family Caprimulgidae. Whippoorwills, Night-hawks, etc.

Subfamily Caprimulginae

Subfamily Chordeilinae

Order **Micropodiiformes.** Swifts and Hummingbirds

Suborder Micropodii

Family Micropodidae. Swifts

Subfamily Chaeturinae

Subfamily Micropodinae

Suborder Trochili

Family Trochilidae. Hummingbirds

Subfamily Trochilinae

[Order **Coliiformes.** Colies]

Order **Trogoniformes.** Trogons

Family Trogonidae.

Order **Coraciiformes.** Kingfishers, Rollers and Hornbills

Suborder Alcedines

Superfamily Alcedinides

Family Alcedinidae. Kingfishers

Subfamily Cerylinae

[Suborder Coracii. Rollers]

[Suborder Bucerotes, Hornbills]

Order **Piciformes.** Woodpeckers and Jacamars



[Suborder Galbulae. Jacamars]

Suborder Pici

Family Picidae. Woodpeckers

Subfamily Picinae

Order **Passeriformes**. Perching Birds

[Suborder Eurylaemi Broadbills]

Suborder Tyranni

Family Cotingidae. Cotingas

Family Tyrannidae. Tyrant Flycatchers

[Suborder Menurae. Lyre Birds]

Suborder Oscines

Family Alaudidae. Larks

Family Hirundinidae. Swallows

Family Corvidae. Crows and Jays

Subfamily Garrulinae

Subfamily Corvinae

Family Paridae. Titmice

Subfamily Parinae

Subfamily Remizinae

Subfamily Psaltriparinae

Family Sittidae. Nuthatches

Subfamily Sittinae

Family Certhiidae. Creepers

Subfamily Certhiinae

Family Chamaeidae. Wren-Tits

Family Cinclidae. Dippers

Family Troglodytidae. Wrens

Family Mimidae. Thrashers, Mockingbirds, etc.

Family Turdidae. Thrushes, Bluebirds, etc.

Family Sylviidae. Warblers, Kinglets and Gnat-catchers

Subfamily Sylviinae

Subfamily Polioptilinae

Subfamily Regulinae

Family Motacillidae. Pipits and Wagtails

Family Bombycillidae. Waxwings

Family Ptilogonatidae. Silky Flycatchers

Family Laniidae. Shrikes

- Subfamily Laniinae
- Family Sturnidae. Starlings
- Family Vireonidae. Vireos
  - Subfamily Vireoninae
- Family Coerebidae. Honey Creepers
  - Subfamily Coerebinae
- Family Mniotiltidae. Wood Warblers
- Family Icteridae. Blackbirds, Orioles, etc.
- Family Thraupidae. Tanagers
  - Subfamily Thraupinae
- Family Fringillidae. Finches, Sparrows, etc.
  - Subfamily Richmondinae
  - Subfamily Passerinae
  - Subfamily Fringillinae
  - Subfamily Carduelinae
  - Subfamily Emberizinae

NOTES FROM NORTHWESTERN LOWER CALIFORNIA,  
WITH THE DESCRIPTION OF AN APPARENTLY  
NEW RACE OF THE SCREECH OWL.

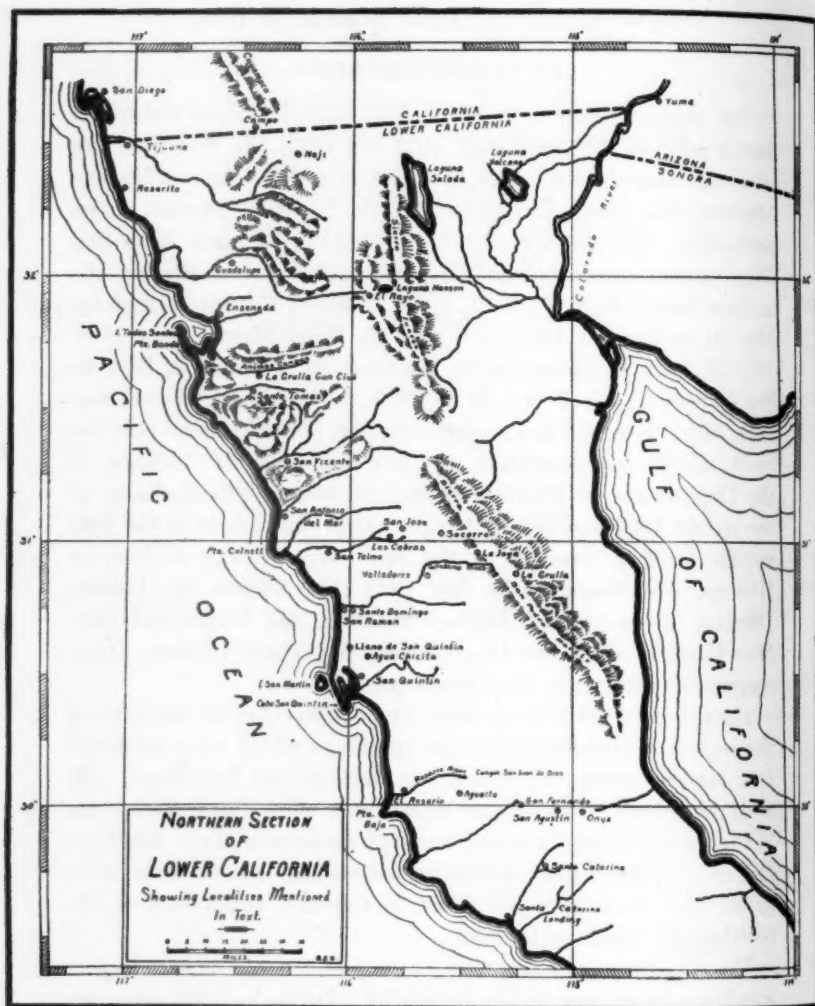
BY LAURENCE M. HUEY.

THE present paper is based on field work in Lower California during parts of the years 1923, 1924 and 1925. In that time five trips were made by the writer, in the interest of the Natural History Museum, San Diego, California, into the Northern District of the peninsula. The dates of the trips, which were made from San Diego in the company of various persons, and their furthest destinations were: April 6 to 21, 1923, to Santa Catarina Landing; May 31 to June 29, 1923, to Sierra San Pedro Martir; June 26 to July 27, 1924, to Sierra Juarez; February 18 to March 3, 1925, to San Quintin; April 27 to June 29, 1925, to Aguaita. All work was done with the cordial and generous support of the Mexican Government, whose representative, the late Prof. Jose M. Gallegos of the Department of Estudios Biologicos, was in official charge of the second 1923 and the 1924 trips. Other coworkers in the field include Griffing Bancroft of the San Diego Society of Natural History, who financed the first 1923 trip, Clinton G. Abbott, Director of the Natural History Museum, San Diego, and Mrs. May Canfield of the San Diego Society of Natural History, whose cooperation has made these notes possible.

The attached list is in no sense intended to cover all the birds of the region; it includes only those species to which some reference that seemed worthy of record was made in the field notes. On trips necessarily of such short duration, it would be several years before a comprehensive survey could be made even of the Northern District. Nevertheless, sufficient interesting observations have so far been made it would seem, to warrant, publication of the ornithological findings to date.

The topography of the territory is affected by various factors which are of interest to the naturalist. In the foot-hill area, between Sierra San Pedro Martir and the Pacific Ocean, where most of the field work covered by this paper has been done, diverse influences converge. From the south there is the influence of the

arid tropical desert which occupies the southern half of the peninsula; from the north the influence indicates a combination derived



both from the coast and from the Colorado Desert. Plain evidence of these influences is found in the characteristic flora of each of the

contributing regions. For instance, peculiar desert plants of the south, of which a conspicuous example is a giant cactus locally known as cardon (*Pachycereus*), find their northern limit about four miles east of Santo Domingo. Furthermore, along the coast up to a point some 20 miles north of San Quintin, the low-growing shrubs are fairly smothered with "orchilla," a species of lichen (*Rocella*), that occurs abundantly to the south, where warmth and ocean fog provide the conditions for its growth. On the other hand, the southern limit of chamisal (*Adenostoma fasciculatum*), so abundant along the coast further north, seems to be on the higher hills in the latitude of El Rosario, whereas the desert counterpart of this shrub, redshank (*Adenostoma sparsifolium*), mingles with it at the base of the Sierra San Pedro Martir east of San Quintin. Another plant whose course can be followed from the northeast is Parry's pinyon (*Pinus quadrifolia*), which in San Diego County, California, grows on the east slope of the Laguna Mountains, but on Sierra San Pedro Martir, 250 miles further south, is found on slopes facing the Pacific.

The result of these converging influences is to create a peculiar and limited local area, which may roughly be said to extend from the foot-hills south of San Vicente to El Rosario, and from the ocean to the lower slopes of Sierra San Pedro Martir. This area might be called the San Quintin faunal subdivision of the district, and would take the place of the coastal portion of the southernmost part of the San Diegan District, as outlined by Dr. E. W. Nelson in his "Lower California and its Natural Resources," (Memoirs of the National Academy of Sciences, Vol. XVI, map facing page 118.) Additional evidence of the differentiated character of this limited area may perhaps be found in the abundant growth of a certain wild rose (*Rosa minutifolia*), on the hillsides beyond the reach of the sea fogs which was not found commonly either to the north or south. A new species of kangaroo rat (*Dipodomys gravipes*), was also established,<sup>1</sup> which is apparently confined to this region.

The bird life of the district is such as might be expected when its character is understood. Thus it is not surprising to find the San

---

<sup>1</sup>Proceedings of the Biological Society of Washington, Vol. 38, Pp. 83-84.

Fernando Flicker (*Colaptes chrysoides brunescens*), Mearns's Thrasher (*Toxostoma cinereum mearnsi*), San Fernando Woodpecker (*Dryobates scalaris eremicus*), Desert Black-throated Sparrow (*Amphispiza bilineata deserticola*), and others representative of the arid regions inhabiting this locality. These forms from the south find their northern limit in the foot-hills along the coastal slope of Sierra San Pedro Martir, while such northern races as the Rosario Thrasher (*Toxostoma redivivum helva*), San Diego Red-winged Blackbird (*Agelaius phoeniceus neutralis*), and Pallid Wren-Tit (*Chamaea fasciata henshawi*), find their southern limit in the same territory.

Close observation of the birds in such an area brings out forcibly the value of associational study. Thus *Colaptes chrysoides brunescens*, dependent for nesting sites upon the giant cactus, is not found beyond the northernmost growth of the plant a few miles east of Santo Domingo. Similarly, the form of Thrasher from the south, *Toxostoma cinereum mearnsi*, living in strictly cactus association, finds its northern limit in the vicinity of San Telmo, where the greater part of the wonderful cactus flora characteristic of the peninsula comes to an end.

The presence of streams of water or subterranean flows naturally has a special influence on the flora and fauna. Drainage from the higher mountains creates damp valleys suitable for the growth of willows and arrow-weed. South of Sierra San Pedro Martir such valleys are lacking for long distances. In the foot-hill valleys fed from sources in the Sierra San Pedro Martir many northern species of birds reach their southernmost limit and do not wander far from the plant association that occurs in these valleys.

**Larus glaucescens.** GLAUCOUS-WINGED GULL.—Six birds of this species were seen on the ocean beach at San Ramon, June 6, 1925. Countless numbers of sea birds were congregated at this point owing to the fact that the wave action had dammed up the mouth of the Santo Domingo River, forming two large lagoons of fresh water in which the sea birds were bathing.

**Phalacrocorax auritus albociliatus.** FARALLON CORMORANT.—Seen in thousands along the coast between San Ramon and the vicinity of El Rosario April 29, May 17 and 18, and June 6 and 7, 1925. Its abundance is the only reason for mentioning this bird. The writer watched Cormorants of this subspecies pass in long lines reaching from the beach to a point several miles out to sea for three hours on the morning of June 7,



1925. On all the dates the movement of the birds was toward the north in the morning and toward the south in the evening.

***Mareca americana.*** BALDPATE.—This species occurs commonly as a winter visitant. Found in the small ponds at La Grulla, Sierra San Pedro Martir, during June, 1923. Three specimens were shot June 14, 1923, by Dr. John Van Denburgh of the California Academy of Sciences, a member of our party. Dissection showed these birds to be non-breeders.

***Olor columbianus.*** WHISTLING SWAN.—Apparently a regular winter visitant to Laguna Hanson, Sierra Juarez. Three specimens in the flesh, all from that lake, have been brought to the Natural History Museum by sportsmen, one on December 13, 1923, and two on November 16, 1924.

***Butorides virescens anthonyi.*** ANTHONY'S GREEN HERON.—Observations of this Heron are limited to two occurrences, one on May 11, 1925, at El Rosario and the other on June 6, 1925, at San Ramon. The latter bird was shot, but fell far into a dense tule marsh and could not be retrieved. The date might indicate that the bird was breeding.

***Rallus virginianus.*** VIRGINIA RAIL.—This species was recorded as breeding in two localities on the peninsula. At Laguna Hanson in the Sierra Juarez, an adult male was shot July 17, 1924, and a juvenile in black plumage the day following, and at San Ramon on June 6, 1925, an adult female and a juvenile in black plumage were collected. The call of this Rail was also heard in a tule patch at El Rosario, May 12, 1925, and the inference is that the bird was breeding, as conditions were even more suitable than at the two localities where specimens were collected.

***Creciscus coturniculus.*** CALIFORNIA BLACK RAIL.—A male bird of this species was caught on June 6, 1925, in a mouse-trap set for meadow mice near the water's edge in a tule swamp at San Ramon. Dissection proved that it was breeding. However, a careful search of the nearby marsh failed to reveal a nest, nor was the call note of another bird heard. The writer is thoroughly familiar with the habits of this species on its nesting grounds in the salt marshes bordering San Diego Bay, California, but the present location offered new obstacles in the form of tall tules and luxuriant fresh-water vegetation, so that locating a nest was next to impossible.

***Fulica americana.*** AMERICAN COOT.—Coots were present and breeding in all suitable localities—Laguna Hanson, La Grulla (Sierra San Pedro Martir), San Ramon and El Rosario. Coots with newly hatched young were seen June 10, 1923, on the small lakes in La Grulla, and nests were found containing fresh eggs as late as July 25, 1924, at Laguna Hanson.

***Limnodromus griseus scolopaceus.*** LONG-BILLED DOWITCHER.—A single bird of this species was seen at San Ramon as late as June 7, 1925.

***Limosa fedoa.*** MARBLED GODWIT.—A single bird was still at San Ramon on June 7, 1925.

***Totanus melanoleucus.*** GREATER YELLOW-LEGS.—Five Greater Yellow-legs were closely scrutinized at San Ramon on June 7, 1925.

***Podasocys montanus.*** MOUNTAIN PLOVER.—Found but once, when

a migrating band was discovered February 18, 1925, on the plain near Rosarito Beach, about 18 miles south of the international boundary.

***Columba fasciata fasciata.*** BAND-TAILED PIGEON.—One individual seen near the summit of the grade north of Santo Tomas on April 28, 1925.

***Melopelia asiatica trudeaui.*** WHITE-WINGED DOVE.—Several heard and seen at a distance amid the giant cactuses 7 miles east of Santa Catarina April 15, 1923. Two pairs were also observed in the giant cactuses in Canyon San Juan de Dios May 2 and 5, 1925, but they were so extremely wild that collecting was impossible. I was informed by Miss Hamilton, who owns a ranch at Santo Domingo, that White-winged Doves are abundant in that vicinity in fall, and mute evidence in support of this statement was provided behind the woodshed, where visiting hunters clean their game; for in a great pile of feathers was a good sprinkling of identifiable feathers from this bird.

***Chaemepelia passerina pallescens.*** MEXICAN GROUND DOVE.—Found breeding commonly in the drier parts of the willow bottom a few miles east of El Rosario. Fresh eggs were obtained from May 11 to May 22, 1925. All of the nests were situated a few feet above the ground on horizontal arrow-weed branches.

***Gymnogyps californianus.*** CALIFORNIA CONDOR.—Occurs in the higher mountains. One was seen in Sierra San Pedro Martir, June 12, 1923, and one in Sierra Juarez, July 21, 1924.

***Cathartes aura septentrionalis.*** TURKEY VULTURE.—Abundant in summer and occurs sparingly in winter. One seen February 21, 1925, at Santo Domingo.

***Circus hudsonius.*** MARSH HAWK.—Found in suitable localities as far south as El Rosario, where it undoubtedly breeds, as birds were seen during April and May, and the valley is ideal for their nesting.

***Accipiter cooperi.*** COOPER'S HAWK.—Common winter visitant. Three were seen at Santo Domingo as I was leaving that place March 2, 1925. Breeds in suitable localities. A nest with five young was found in an oak near Guadalupe May 31, 1923. On April 28, 1925, in the live oak belt a mile southeast of La Grulla Gun Club (about 20 miles south of Ensenada) a fine adult Cooper's Hawk flew directly in front of my machine. A pair was also noted, together or individually, many times at El Rosario during May, 1925, and always in the same vicinity. They were so shy that it was impossible to get within gun range.

***Parabuteo unicinctus harrisi.*** HARRIS'S HAWK.—This bird has been observed three times in the coastal region. On June 3, 1923, one flushed from a fence post by the roadside at Santo Tomas; one was seen flying at sunset near Santo Domingo, February 20, 1925; and five were seen June 6, 1925, about halfway down the valley between Santo Domingo and San Ramon. One of the latter was collected and proved to be an adult male. I stalked the others for an hour, only getting close enough to determine that three were young on the wing and the other an adult, no doubt the female. The question naturally arises of how near this place the young

were hatched. There was no suitable tree within a radius of forty miles, though large sumach bushes fifteen feet high were not uncommon and would offer some suitable nesting sites.

**Buteo abbreviatus.** ZONE-TAILED HAWK.—Seen on the higher ranges. One was secured on June 16, 1923, at La Grulla, Sierra San Pedro Martir, by A. W. Anthony of San Diego, a member of our party; one was seen by the writer at the same place June 22, 1923; a male was collected at El Rayo, Sierra Juarez, July 7, 1924; and a bird was observed four miles east of Laguna Hanson, July 14, 1924.

**Buteo swainsoni.** SWAINSON'S HAWK.—Seen but twice below the border. A pair was observed near Rosarito Beach, April 27, 1925, evidently on migration. Another pair was seen ten miles south of Ensenada in Las Animas Canyon, April 28, 1925. These two birds were perched on the same limb in a large sycamore, and were scrutinized, at a hundred yards' distance, with powerful binoculars. Several old Hawk nests in the nearby trees and the actions of the birds indicated this to be their nesting ground.

**Archibuteo ferrugineus.** FERRUGINOUS ROUGH-LEGGED HAWK.—Occurs in winter along the coastal plains. One was seen eight miles south of Ensenada, February 18, 1925, and two were collected at Santo Domingo—one on February 21 and one on February 22, 1925.

**Aquila chrysaetos.** GOLDEN EAGLE.—One was observed flying over Sierra San Pedro Martir at La Grulla, June 15, 1923, and another was flushed from the reeking carcass of a dead cow near the roadside on the north end of San Quintin plain, February 25, 1925. The bird had been feeding on carrion in company with a dozen Ravens—the writer's first experience of seeing a Golden Eagle partaking of such fare!

**Falco mexicanus.** PRAIRIE FALCON.—A single individual was observed at El Rosario, May 3, 1925.

**Falco peregrinus anatum.** DUCK HAWK.—Of common occurrence along the coast. Observed inland at La Grulla, Sierra San Pedro Martir, June 10 and 17, 1923; a pair was observed several different times in the vicinity of Laguna Hanson, Sierra Juarez, during July, 1924.

**Falco columbarius columbarius.** PIGEON HAWK.—One female specimen collected at Santo Domingo, March 1, 1925.

**Tyto alba pratincola.** AMERICAN BARN OWL.—Not uncommon as far south as El Rosario where their screeches could be heard at night. One was several times seen in its day roost in a dense pepper tree near my camp at Santo Domingo during the latter part of February, 1925, and Barn Owls were frequently heard about my camp near the mouth of Agua Chicita Canyon, on San Quintin plain, during June, 1925.

**Otus asio cardonensis.** BANCROFT'S SCREECH OWL.—A new subspecies described from nine specimens taken during April, 1923, among the giant cactuses in the canyons east of El Rosario where they were nesting in Woodpecker holes. Characters, measurements, etc., are given at the end of the present paper.

**Bubo virginianus pacificus.** PACIFIC HORNED OWL.—A male bird of this species was collected at Santo Domingo, June 1, 1925. The specimen was submitted to Dr. J. Grinnell, Museum of Vertebrate Zoology, Berkeley, who made the identification.

**Speotyto cunicularia hypogaea.** BURROWING OWL.—Not uncommon as far south as El Rosario.

**Dryobates scalaris eremicus.** SAN FERNANDO WOODPECKER.—This form was found sparingly through the cactus-covered areas, where it digs its nest in the stems of the agaves or mescal plants. Specimens were collected as far north as three miles east of San Quintin, February 25, 1925, and seen as far south as Santa Catarina Landing, April 12 to 14, 1923.

**Dryobates nuttalli.** NUTTALL'S WOODPECKER.—Found breeding at Las Cabras, June 5, 1923 and taken at Santo Domingo, February 21, 1925. Search during May at El Rosario, where conditions seemed propitious for the nesting of this Woodpecker, failed to reveal its presence; nor was any work on the trees observed that could have been done by *D. nuttalli*.

**Sphyrapicus varius daggetti.** SIERRA RED-BREASTED SAPSUCKER.—One seen at Santo Domingo, March 1, 1925.

**Melanerpes formicivorus bairdi.** CALIFORNIA WOODPECKER.—This species was found abundantly in the live oak belts on Sierra Juarez and the west slope of Sierra San Pedro Martir at about the 5,000–6,000 foot altitude. Camps were made at La Joya and Valladares Creek during June, 1923, and pine trees that intermingled with the oaks were heavily perforated for the storing of acorns by these birds.

**Colaptes chrysoides brunnescens.** SAN FERNANDO FLICKER.—Fairly common in the giant cactus association. The northernmost observation was six miles northeast of San Quintin on February 25, 1925, when a bird of this species was seen in the cactus-covered hills bordering Llano de San Quintin.

**Phalaenoptilus nuttalli californicus.** DUSKY POOR-WILL.—Rather common. Found nesting at La Joya on the west slope of Sierra San Pedro Martir, June 9, 1923, by Dr. Van Denburgh. Heard calling at Santo Domingo during February, 1925, and specimens collected at this locality during June, 1925.

**Chaetura vauxi.** VAUX'S SWIFT.—Single birds of this species were observed May 12 and 14, 1925, at El Rosario.

**Aeronautes melanoleucus.** WHITE-THROATED SWIFT.—Two males of this species were seen June 26, 1925, near Socorro. Also seen occasionally during May, 1925, in the vicinity of El Rosario.

**Calypte costae.** COSTA'S HUMMINGBIRD.—This was the most abundant Hummingbird of the coastal region and was noted about camp in La Grulla, Sierra San Pedro Martir, during June, 1923, where an adult male was taken on June 14 and an immature on June 21. The occurrence of the species at this altitude seems worthy of note for it illustrates another case of lateral post-breeding migration—a habit that is not uncommon among

the species of Hummingbirds that nest in the foot-hills bordering the higher mountains in California.

***Calypte anna*.** ANNA'S HUMMINGBIRD.—Found at Santo Domingo, February 21, 1925, and observed feeding on the blossoms of the Agaves on the hills five miles east of San Quintin, February 25, 1925.

***Selasphorus alleni*.** ALLEN'S HUMMINGBIRD.—An adult female taken at Santo Domingo, February 22, 1925. Also seen feeding commonly with Anna's Hummingbird five miles east of San Quintin, February 25, 1925.

***Tyrannus verticalis*.** WESTERN KINGBIRD.—Breeds in the conifers on the higher mountains. Seen at La Grulla, Sierra San Pedro Martir, throughout June, 1923, and at El Rayo and Laguna Hanson, Sierra Juarez, in June and July, 1924. Young and adults were collected in the latter locality.

***Tyrannus vociferans*.** CASSIN'S KINGBIRD.—This bird was common in the coastal valleys, where it was found nesting during late May and early June, 1925. On my trip through this region in early April, 1923, the species was not seen and, with their presence commonly in the San Diegan region of southern California during winter, the question arises as to whether these Kingbirds, so common during the breeding season, do not go north for the winter.

***Empidonax trailli trailli*.** TRAILL'S FLYCATCHER.—The only point where this Flycatcher has been noted was in the willow bottom at Las Cabras, June 5, 1923. Although ideal conditions for this bird seemed to obtain at El Rosario, careful collecting over a three-weeks' period in May, 1925, failed to reveal its presence.

***Pyrocephalus rubinus mexicanus*.** VERMILION FLYCATCHER.—One definite record for the region—a male taken by A. W. Anthony at Las Cabras, June 4, 1923. The bird must occur spasmodically, as several people have described it to me, both at Santo Domingo and El Rosario.

***Otocoris alpestris actia*.** CALIFORNIA HORNE LARK.—Specimens taken near San Agustin, April 15, 1923, and in the vicinity of San Quintin, June 9, 1925, proved to be of this subspecies.

***Aphelocoma californica obscura*.** BELDING'S JAY.—This Jay is normally resident in the oak belt, but occasionally wanders coastward, as on February 21, 1925, two were seen at Santo Domingo. A series of specimens was collected in the Sierra San Pedro Martir. Both Dr. J. Grinnell and Mr. H. S. Swarth of the Museum of Vertebrate Zoology, Berkeley, now agree that *A. c. obscura*, originally described from Valladares, in a valid form.

***Corvus brachyrhynchos hesperis*.** WESTERN CROW.—Not observed south of Guadalupe, where it was seen in large flocks on April 6, 1923.

***Nucifraga columbiana*.** CLARKE'S NUTCRACKER.—But one record—observed at La Grulla, Sierra San Pedro Martir, June 19, 1923.

***Agelaius phoeniceus neutralis*.** SAN DIEGO RED-WINGED BLACKBIRD.—Found breeding in all suitable localities as far south as El Rosario.



**Agelaius tricolor.** TRICOLORED BLACKBIRD.—Observed but once—at the well in upper San Antonio del Mar, March 2, 1925, when about a dozen males of this species were seen in a large flock of *A. p. neutralis*.

**Icterus parisorum.** SCOTT'S ORIOLE.—Many were observed on migration five miles northeast of San Quintin, February 25, 1925, although the birds were extremely shy, as usual. The presence of this Oriole in numbers so near the Pacific coast offers a problem in migration routing; for the species is of extremely accidental occurrence along the coast further north, in the vicinity of San Diego, whereas inland, on the desert slope of the mountains east of San Diego, it passes regularly. Further observation of these birds will probably determine that they range up the peninsula, equally distributed from coast to coast, as far as the southern extremity of the Sierra San Pedro Martir, and that here they swing toward the Pacific, then northeastward again to the eastern slope of the mountains in southern California. A semi-arid highway, such as the Scott's Oriole prefers, is thus provided. This theory may be geographically explained by the greater distance of the Sierra San Pedro Martir from the coast, as compared with the high mountains in southern California. The eastern slope of the Sierra San Pedro Martir, on the Gulf side, is so precipitous as to offer practically no highway for the birds' passage, hence their choice of the coast side in this region.

**Icterus cucullatus nelsoni.** ARIZONA HOODED ORIOLE.—Apparently the only breeding Oriole in the coastal district south of San Antonio del Mar. Seen as early as February 28, 1925, when an adult male was collected by Mrs. May Canfield at Santo Domingo.

**Icterus bullocki.** BULLOCK'S ORIOLE.—Found breeding as far south as the sycamore filled canyons six miles north of San Vicente, where several pairs were seen June 18, 1925.

**Euphagus cyanocephalus.** BREWER'S BLACKBIRD.—This species was found commonly in the mountain valleys both in the Sierra Juarez and Sierra San Pedro Martir. The most exceptional locality was at Santa Catarina Landing, where a single female was collected April 14, 1923.

**Carpodacus purpureus californicus.** CALIFORNIA PURPLE FINCH.—A breeding bird of this subspecies was taken by Prof. J. M. Gallegos at El Rayo, Sierra Juarez, July 7, 1924. A few were observed at Santo Domingo during the time spent there in late February, 1925, and one specimen was collected on the 21st.

**Astragalinus tristis salicamans.** WILLOW GOLDFINCH.—An immense flock of these Goldfinches was observed on the northern end of San Quintin plain, February 25, 1925. The southernmost locality where this species was observed during the breeding season was Las Animas Canyon, ten miles south of Ensenada, where they were found by the writer, June 28, 1925.

**Astragalinus lawrencei.** LAWRENCE'S GOLDFINCH.—Observed at La Grulla, Sierra San Pedro Martir, June 14, 1923, and one specimen collected. On February 25, 1925, about 100 birds of this species were seen



drinking from a water trough at Rancho Las Escovas on Llano de San Quintin.

***Spinus pinus*.** PINE SISKIN.—Breeds in the conifers on the higher elevations of Sierra Juarez and Sierra San Pedro Martir.

***Passer domesticus*.** ENGLISH SPARROW.—This species is becoming well established in all the small settlements of the Northern District. In April, 1923, they were observed only as far south as San Antonio del Mar, while on May 8, 1925, I collected a lone specimen at Aguaita, which is situated over 125 miles air line south of San Antonio del Mar. The bird appeared about 10 o'clock in the morning at the lone adobe ruin where I was preparing specimens and chipped about as though it had found a friend! The Sparrow population of El Rosario in May, 1925, was estimated at 50 birds.

***Poocetes gramineus confinis*.** WESTERN VESPER SPARROW.—Observed at Santo Domingo in late February, 1925, and specimens collected.

***Passerculus sandwichensis alaudinus*.** WESTERN SAVANNAH SPARROW.—Common winter visitant to suitable regions. Observed at Santo Domingo, February, 1925, and an adult female was collected as late as May 16, 1925, at El Rosario.

***Passerculus beldingi*.** BELDING'S SPARROW.—This species finds its southern limit in the marshes about San Quintin where it is not common. Definitely recorded by the writer but once, when he took a snap shot at one on the beach at San Ramon, June 7, 1925.

***Zonotrichia l. leucophrys*.** WHITE-CROWNED SPARROW.—One collected at Santo Domingo, February 21, 1925, and one on May 23, 1925, at El Rosario. At the latter locality a flock of about 50 birds of this species was observed on May 22, while but two were seen, and one of them collected, on the day following. Evidently the call of the nesting grounds was strong and they were in a hurry.

***Spizella atrogularis*.** BLACK-CHINNED SPARROW.—Not uncommon on the brushy western slopes of Sierra San Pedro Martir and Sierra Juarez. Observed near Socorro, June 9, 1923, and breeding specimens taken five miles south of Neji, June 27, 1924, and at El Rayo, Sierra Juarez, June 30 and July 1, 1924.

***Junco oreganus thurberi*.** SIERRA JUNCO.—A single male of this species was collected from a small flock of Juncos in Las Animas Canyon, ten miles south of Ensenada, February 19, 1925.

***Amphispiza bilineata deserticola*.** DESERT BLACK-THROATED SPARROW.—This subspecies was found on the Pacific slope as far north as the vicinity of El Rosario. It is of common occurrence further south on both the Gulf and west slopes, even extending its range to some of the islands—Cedros, Natividad and Santa Margarita. Specimens from each of these islands are in the collection of the San Diego Society of Natural History.

***Amphispiza belli*.** BELL'S SPARROW.—Bell's Sparrows were found as far south as Santa Catarina Landing, which is as far south as the writer has been on the mainland.

**Melospiza melodia cooperi.** SAN DIEGO SONG SPARROW.—This subspecies finds its southern limits in the valley of El Rosario. Specimens from that locality are not typical of *M. m. cooperi*, but are exact counterparts of those found intermittently along the immediate seacoast from Ventura, California, south.

**Passerella illaca altivagans.** ALBERTA FOX SPARROW.—A female collected by Mrs. May Canfield at Santo Domingo, February 26, 1925, is the only record. No doubt many of the forms of *Passerella* that winter abundantly in southern California could be found in suitable parts of the coastal slope, from the higher levels of Sierra San Pedro Martir to the sea, and perhaps as far south as El Rosario, if field work were carried on in the region during the winter months. It seems reasonable that the majority of the several races of Fox Sparrows which nest in the Sierra Nevada and adjacent mountains as far south as the San Jacintos, find winter quarters in this region, though the writer has been unable to find a single record of these birds below the border.

**Pipilo maculatus umbraticolus.** CAPE COLNETT SPOTTED TOWHEE.—Breeds in the Upper Sonoran Zone on the slopes of the higher mountains. It makes post-breeding lateral migrations to the higher mountains, like some other birds, *Troglodytes aedon parkmanni*, *Calypte costae*, etc. When the winter snows come, it descends again, getting well down toward the coast. Summer specimens were collected from Sierra Juarez and Sierra San Pedro Martir, and a winter specimen (male) from Santo Domingo, February 24, 1925.

**Oberholseria chlorura.** GREEN-TAILED TOWHEE.—This species was observed as a migrant at Santo Domingo, February 25 and 28, 1925.

**Zamelodia melanocephala capitalis.** PACIFIC BLACK-HEADED GROSBEAK.—Found in limited numbers, breeding, as far south as Las Cabras, June 5, 1923. Occurs more abundantly from the vicinity of Las Animas Canyon, near Ensenada, northward.

**Guiraca caerulea salicarius.** CALIFORNIA BLUE GROSBEAK.—A specimen was collected by A. W. Anthony at Las Cabras, June 5, 1923, and found to be a male of the previous year. A male was also seen by C. G. Abbott in Box Canyon, near San Antonio del Mar, May 16, 1925.

**Piranga ludoviciana.** WESTERN TANAGER.—This species met with in the live oak belt at Valladares Creek on the western slope of Sierra San Pedro Martir, June 25, 1923, when two males were collected by members of our party. Also found in the higher parts of Sierra Juarez during June and July, 1924. Observed as a migrant April 28, 1925, in Box Canyon, a mile north of San Antonio del Mar.

**Piranga rubra cooperi.** COOPER'S TANAGER.—A male of this form was singing in the tall eucalyptus trees at Santo Domingo on the evening of June 6, 1925, and the following day the writer tried hard to catch sight of it within gun range, but was unable to do so. The song and shy habits of this bird are well known to him, as the result of considerable experience with Tanagers in the Lower Colorado Valley. A fleeting glimpse proved

it to be a year-old bird which had not yet attained the conspicuous bright red plumage.

**Progne subis hesperia.** WESTERN MARTIN.—Nests commonly in the higher mountains—Sierra Juarez and Sierra San Pedro Martir—and even amongst the giant cactuses in Canyon San Juan de Dios, where a pair were observed flying to and from a hole May 5, 1925. Also seen flying over the marshes at San Ramon, June 6 and 7, 1925.

**Hirundo erythrogastra.** BARN SWALLOW.—Common coast-wise migrant. Observed as late as June 6, 1925, at San Ramon.

**Tachycineta thalassina lepida.** NORTHERN VIOLET-GREEN SWALLOW.—Breeds commonly on the higher mountains—Sierra Juarez and Sierra San Pedro Martir. Observed on the coast as late as June 6, 1925, at San Ramon, where a few were seen coursing over the marsh.

**Bombycilla cedrorum.** CEDAR WAXWING.—Winter visitant to this region, staying late. Observed at San Telmo, June 4, 1923, when five individuals were seen eating sprouts in an apricot tree. A small flock of 20 or 25 stayed about the Red Rock Ranch at Santo Domingo from the time the writer passed on April 29, 1925, until he was returning north on June 18, 1925.

**Phainopepla nitens.** PHAIÑOPEPLA.—This bird would be expected to occur commonly on the deserts from San Antonio del Mar south, but the only observation of the species in this region was at Santo Domingo, June 18, 1925, when an adult male was seen in the brush near the riverbed. Further north in the vicinity of Ensenada this species was breeding abundantly; several nests were discovered June 27, 1925.

**Dendroica aestiva brewsteri.** CALIFORNIA YELLOW WARBLER.—Breeds commonly in the willow association as far south as El Rosario and was observed inland as far as Las Cabras and San Jose, June 4, 5 and 6, 1923.

**Dendroica auduboni auduboni.** AUDUBON'S WARBLER.—Abundant winter visitant. A mated pair was noted at La Joya, on the west slope of Sierra San Pedro Martir, June 9, 1923.

**Dendroica nigrescens.** BLACK-THROATED GRAY WARBLER.—A most abundant nester in the oak belt on Sierra Juarez and the west slope of Sierra San Pedro Martir. After the young are on the wing they go higher into the coniferous forests, where many specimens of young on the wing were taken during June, 1923, and July, 1924, in the two above-mentioned ranges.

**Geothlypis trichas scirpicola.** TULE YELLOW-THROAT.—These birds were found abundantly near the coast, breeding in suitable localities, such as Las Cabras (June 5, 1923), San Ramon (June 6, 1925) and El Rosario (May 10-26, 1925).

**Toxostoma cinereum mearnsi.** MEARN'S THRASHER.—Fairly abundant among the Cactus on the arid slopes of the coastal hills from the vicinity of San Antonio del Mar to Santa Catarina Landing.

**Toxostoma redivivum helva.** ROSARIO THRASHER.—The southern-

most point at which this bird was found was two miles east of San Fernando, April 16, 1923. It was nesting commonly in the willow bottoms near El Rosario during May, 1925.

***Heleodytes brunneicapillus bryanti*.** BRYANT'S CACTUS WREN.—This subspecies, like Mearns's Thrasher, was found as far north as suitable Cactus cover existed. The Cactus Wrens, however, do not wander far from the spiny protection of cactus or other thorny shrubs and therefore are more local in their distribution. Old nests of this bird were found as far east as 20 miles east of San Telmo, and specimens were taken as far south as the writer has been on the peninsula—Santa Catarina Landing.

***Psaltriparus minimus minimus*.** COAST BUSH-TIT.—Found breeding along the coast as far south as El Rosario.

***Auriparus flaviceps flaviceps*.** VERDIN.—This species was found near the coast as far north as eight miles east of El Rosario, where young birds but a week or so out of the nest were taken April 30, 1925.

***Chamaea fasciata henshawi*.** PALLID WREN-TIT.—Found as far south as Aguaita. On first comparing specimens from this region with those from the vicinity of San Diego, a noticeable color difference was observed. However, when specimens from near the type locality and the western slope of Sierra Nevada were compared, they were found identical with the Aguaita birds. A more definite range of *C. f. henshawi* is thus established, indicating that in typical form it occurs inland until deflected toward the coast by the Sierra Juarez and Sierra San Pedro Martir. Birds from the vicinity of Ensenada more nearly resemble those about San Diego and, while given the name of *C. f. henshawi*, are not typical.

***Hylocichla guttata guttata*.** ALASKA HERMIT THRUSH.—Abundant in late February, 1925, at Santo Domingo, and found there as late as April 29, 1925.

***Planesticus migratorius propinquus*.** WESTERN ROBIN.—Common winter visitant. Latest observation, Santo Domingo, April 29, 1925.

**A New Subspecies of the Genus *Otus*.**—On the writer's first visit to the giant cactus belt a few miles inland from El Rosario, in company of Mr. Griffing Bancroft during April, 1923, a great deal of Woodpecker work was noticed in the cactuses. Screech Owls were found to be nesting in these cavities, and a number of the birds were secured which, upon examination, seemed to be worthy of subspecific recognition. The form may be known as:

***Otus asio cardonensis*<sup>1</sup> subsp. nov.**

BANCROFT'S SCREECH OWL.

*Type*.—Female adult; No. 8671, Collection of San Diego Society of Natural History; Canyon San Juan de Dios, about ten miles east of El

<sup>1</sup> The name is based on the word cardon which is the local name for giant cactus.

Rosario, Lower California, Mexico; collected by Laurence M. Huey, April 18, 1923; incubating three eggs.<sup>1</sup>

*Characters*.—Nearest to *Otus asio cineraceus*, but darker, especially about head and neck, where the striping is more pronounced. Averages smaller than *O. a. cineraceus* and larger than *O. a. xantusi*.

*Measurements (in millimeters):*

Coll. No.	Sex	Wing	Tail	Tarsus	Middle Toe (without nail)	Culmen	Exposed Culmen
8607	female	149.0	78.5	34.5	17.0	19.0	13.0
8610	male	146.5	72.0	30.5	18.0	18.5	13.0
8611	female	148.5	74.0	32.5	17.5	19.0	13.0
8612	male	148.0	71.5	30.0	18.5	18.0	13.0
8613	male	147.0	73.0	33.0	18.0	19.0	13.0
8614	female	147.5	73.5	32.5	18.5	18.0	13.5
8615	male	144.5	72.5	31.0	17.5	18.0	12.5
8616	female	152.0	80.0	32.5	19.0	19.0	13.5
8671	female	150.5	77.0	33.0	18.0	18.0	13.0
Av. of females		149.5	76.6	33.0	17.8	18.6	13.2
Av. of males		146.5	72.2	31.1	18.0	18.3	12.8
General Average		148.0	74.4	32.0	17.9	18.4	13.0

Nos. 8607 to 8616 were taken about 6 miles east of El Rosario, No. 8671 (type specimen) about 10 miles east of El Rosario. Nos. 8607 and 8614 were laying, and Nos. 8611, 8616 and 8671 were each incubating three eggs.<sup>1</sup> All specimens are in the collection of the San Diego Society of Natural History.

*Range*.—As far as known, the giant cactus (*Pachycereus*) association of the Pacific slope of Lower California from the vicinity of the hills east of Santo Domingo and San Quintin (Bancroft MS.) to the region lying east of El Rosario.

*Specimens examined*.—*Otus asio cineraceus*, Huachuca Mountains, Arizona—1; Tucson, Arizona—2; Fort Lowell, Arizona—2; Total 5. *Otus asio gilmani*, Palo Verde, California—1; Mellen, Colorado River, Arizona—1; 20 miles north Picacho, Colorado River, California—1; 4 miles north Potholes, Colorado River, California—1; Sahuaro patch near Potholes, Imperial County, California—1; Vicinity of Bard, Imperial County, California—1; Total 6. *Otus asio quercinus*, Mount Wilson, Los Angeles County, California—1; Arroyo Seco near Pasadena, California—1; Pasadena, California—1; San Bernardino, California—2; Pine Mountain, San Diego County, California—1; Total 6. *Otus asio xantusi*, Mira Flores, Baja California, Mexico—2.

*Acknowledgments*.—Material from the Museum of Vertebrate Zoology was generously loaned by Dr. J. Grinnell and Mr. H. S. Swarth. Free

<sup>1</sup> The eggs are now in the Bancroft Collection.



access to his private library and collection was courteously granted by Mr. D. R. Dickey of Pasadena, California. The type and series were sent to Dr. E. W. Nelson, Chief of the Bureau of Biological Survey, and through his courtesy they were examined by Dr. H. C. Oberholser, who confirmed the writer's conclusion by returning them with the notation "subsp. nov."

*Natural History Museum,  
Balboa Park, San Diego, California.*





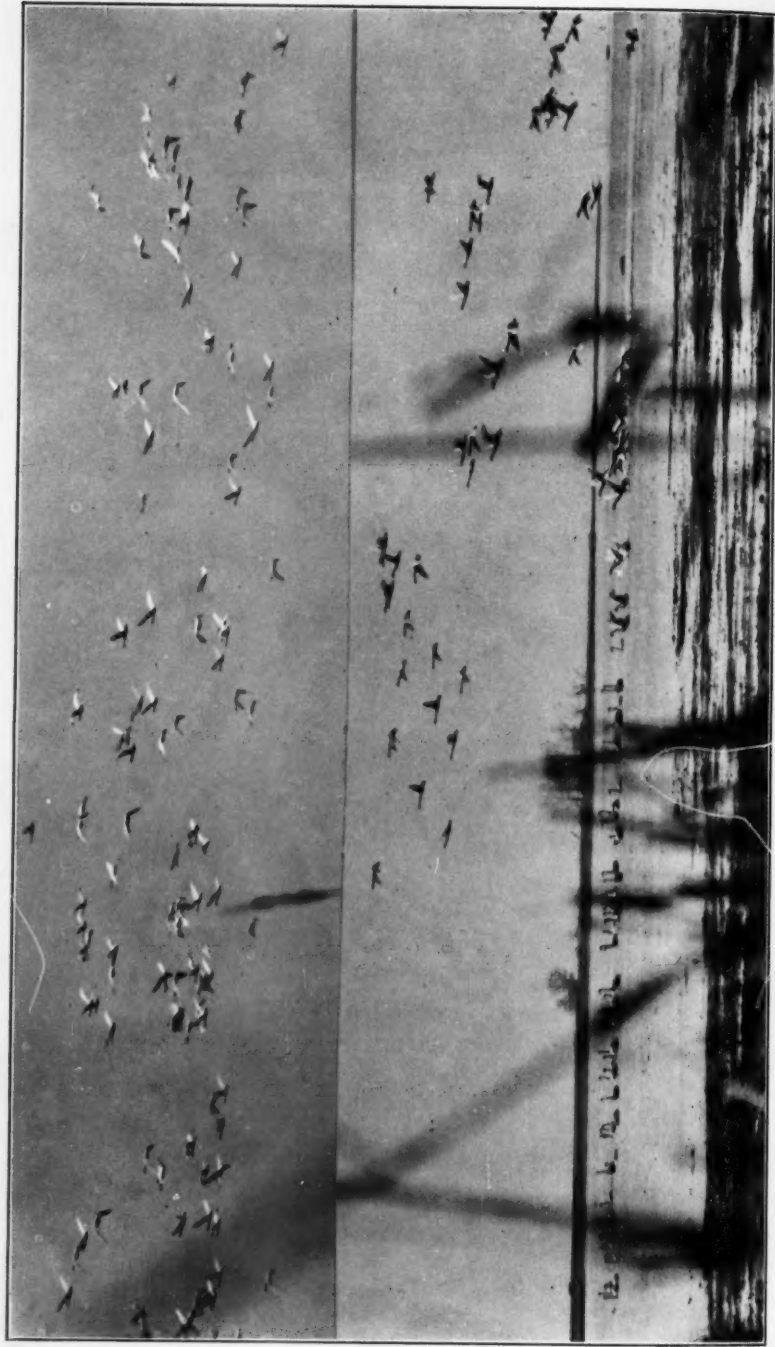


Photo by Photographer of 'The Detroit News.'

TWO PHOTOGRAPHS OF A FLOCK OF WHISTLING SWANS AT THE MOUTH OF THE DETROIT RIVER. SPRING, 1925.

### GENERAL NOTES

**Winter Records for the Black Skimmer (*Rynchops nigra*).**—During the past winter I have more than once observed Black Skimmers (*Rynchops nigra*) in the harbor of Charleston: available dates are December 28, 1925, and January 16, 1926. On both occasions the birds were fishing within a few hundred feet of the Mount Pleasant ferry wharf.—EDWARD VON S. DINGLE, *Mount Pleasant, S. C.*

**Gannet in Bucks County, Pennsylvania.**—While in the home of an old resident of Langhorne, Bucks County, Penna, I discovered a mounted specimen of the Gannet (*Moris bassana*).

The bird had been found by my host, with a broken wing caused evidently from flying into the telephone wires which line the road where it was found. I was told it had been picked up during the early part of July, 1921. The plumage being that of an immature bird, it seemed desirable to make sure that the date was not a mistake. However, the gentleman assured me it was correct as he had just returned from a trip to Maine and it was during a period of daily thunder storms. On consulting the Weather Bureau records for that period I find that between the 8th and 15th of July there were thunder storms daily.

Langhorne is situated about fifty miles from the Atlantic coast and seven miles south of Trenton, New Jersey.—HAROLD T. GREEN, *Academy of Natural Sciences of Philadelphia*.

**The Least Tern (*Sternula antillarum antillarum*), in Grenada, Lesser Antilles.**—In looking over West Indian ornithological literature I have failed to find a record of the Least Tern for Grenada, or for any of the other Lesser Antilles nearer to it than Barbados. Therefore it seems worth while recording about a dozen which frequented a shallow inlet of the sea near the Botanical Gardens at St. George's during my visit to that town, from July 13 to 17, 1922.—STUART T. DANFORTH, *Temple University, Philadelphia, Pa.*

**Whistling Swans in Michigan.**—The accompanying plate is made from two photographs of a flock of Whistling Swans (*Cygnus columbianus*) taken from a blind at the Monroe Marshes adjacent to the mouth of the Detroit River in Michigan, by a staff photographer of 'The Detroit News.' For the past five years the spring flight of Swans at this point has noticeably increased. We are indebted to 'The Detroit News' for the privilege of publishing the photographs.—Ed.

**Greater Snow Goose (*Chen hyperboreus nivalis*) at Sound Beach, Connecticut.**—The estate of J. K. Tod lies on a peninsula which encloses the northeast end of Greenwich Harbor. The house and grounds lie at the extreme western end, and the approach, past a carefully guarded gate—

house, is across half a mile or more of sandy waste land surrounded, on all sides by Long Island Sound. Here, in company with thousands of Scaup, Scoters, Black Duck and other species, a flock of Canada Geese, varying in numbers from one hundred and fifty in mid-winter to five hundred and over in late March, has been present since November last. The writer and Mr. De L. F. Johnson of Scarsdale found upwards of six hundred there on April 11 this year. Among them was a Snow Goose, which we were compelled, because of sight testimony only, to record as *C. h. nivalis*, although our observations, extended over half an hour and at distances varying from two hundred yards to fifty feet, suggest the possibility of its having been the western race, *Chen hyperboreus hyperboreus*. It was first observed on a sand bar of the inner bay in company with several hundred Canada Geese. We watched it both walking and at rest. Walking, the gait and carriage suggested a domesticated species, especially as the body was carried well forward and the neck partly curved as against the "high necked stalking" of *Branta c. canadensis*. Resting, it squatted low to or on the ground with wings slightly lifted. In the air, it flew with far more rapid wing beats than its companions; neck outstretched and bent slightly downward as in *Colymbus holboellii*. On the water it floated with all the grace of a Swan and we noted also the uplifted wings showing plainly the black primaries with ashy coverts against the snow white of the body plumage. Having observed the bird for half an hour or more, we had turned away and were already out of sight when, with a high pitched honking more nasal than that of the Canada Goose, it passed directly over our heads at an altitude of not more than fifty feet. We were then able to observe, closely; the bill, short and high at the base, dull red with a blackish line along the lower mandible; feet dull red; and, an apparent faint, rusty wash, along the neck. Not until it had disappeared into the southwest did we cease to hear the sharp falsetto honking. We were fortunate in being able to observe the bird and make comparisons as to size not only with the much larger Canada Goose but with Black Ducks and Herring Gulls which were swimming in its immediate vicinity. Both Mr. Johnson and I remarked that it appeared, at a distance of a hundred yards, but slightly larger than a Herring Gull. In fact so slight was the difference in size that it was difficult to single it out from among the Gulls. We agreed, however, that, resting on sight observation, we could claim no more than that it was a Greater Snow Goose. The writer has been keeping records since 1906 in the Westchester Co. and lower Fairfield Co. region. To his knowledge this is the first appearance of *Chen hyperboreus nivalis* on this shore of Long Island Sound.—RUTGERS R. COLES, Mamaroneck, New York.

**Status of the Ring-necked Duck in South Carolina.**—The rarity or abundance of this species in South Carolina has been a matter of discussion and it has been reputed as rare, erratic or very rare in different localities. As a matter of fact the evidence seems to point to a peculiarly local distribution.

However erratic, uncommon, or rare, it may be in some sections, there is, at least, one locality where this Duck may always be found in numbers. The center of abundance in South Carolina is in the general region of Green Pond, and the Ashepoo River, about 50 miles to the southward of Charleston. This is particularly true of the plantation of Mr. John F. Maybank of this city, which is known as The Oaks.

On this place is a very extensive backwater, or reserve, a flooded cypress forest, having large areas of open water, dotted here and there with floating islands of vegetation, and bordered with magnificent, moss-draped cypress trees. In this locality, throughout the winter the Ring-necked Duck occurs in enormous numbers. Mr. Maybank tells me that nowhere in the state are they to be found in such abundance. It has been my good fortune to study Ducks in this backwater, and the following observations on the Ringneck may be of interest.

During February of this year, I made a trip to The Oaks for the purpose of securing some specimens of Ducks for the Charleston Museum. Going out into the backwater in the afternoon we watched the ducks coming in, and it was indeed a memorable sight. In small flocks, large flocks, scattered bands, and individuals, they whistled in, curving about and dropping in about us on all sides. Even then it could be seen that *M. collaris* abounded. Early the next morning I was out with a negro paddler, and we set out the decoys in one of the best locations. High water had flooded the blinds, and we simply pushed the boat back among the reeds, and awaited results, which were not long in coming.

Soon after dawn<sup>1</sup>, the Ducks began flying, and I do not think I ever spent a more delightful morning. The Ring-necks were present in multitudes, and, at a conservative estimate, outnumbered all other species by at least 30, or more, to 1. There was absolutely no trouble in securing the specimens wanted by the museum, both sexes being taken, and, after this was done, I laid the gun aside, and simply watched the Ducks decoy. Scores of beautiful shots presented themselves, and the paddler must have thought that he had a crazy man in the boat, as Widgeon, Mallard, and Gadwall came to, and hovered over, the decoys, and were allowed to alight, or pass on unmolested. I tried to explain to him that I had what I wanted, and was perfectly content to sit and watch, but this could hardly persuade him that I had not taken leave of my senses to pass up such shooting.

For several hours the Ducks continued to fly well, about and around us constantly, the little Rink-neck always predominating. I had little trouble in identifying them at any reasonable distance by the brilliant bill markings. These were extremely conspicuous, and stood out against the light in a vivid manner, I had never been so impressed by this before. The specimens taken showed the colors to be very highly developed, and certainly they could have hardly been more intense. Upon remarks to Mr. Maybank later on in the day about the abundance of the species, he assured me that it was nothing unusual, as each winter was the same, and

the Ring-necks were always the commonest Duck he had. As an illustration, a shooting party of ten guns made a bag of 80 Ducks during last January, and over 70 were Ring-necks, no particular comment being caused. Food is planted for them, and the nature of the country suits them. To a large extent they feed upon pondweeds (*Najas*) and the water-lily (*Castalia*), I took a male with four of the tubers of the latter in his throat, which had evidently just been swallowed and gave the throat a peculiar, swollen appearance.

This species on the South Carolina coast prefers freshwater at all times. I do not remember ever having seen one on salt water, although they doubtless do occur there at times. They also seem to show a decided preference for the larger backwaters and reserves which are wooded, or bordered by the cypress swamps, and resort to the open areas of water found in such localities. In the more open, ricefields they are much less common, and occur only erratically. Just why this should be is hard to say. Many of our Ducks are as common in the reserves as they are in the ricefields, and vice versa, but in some cases, of which the Ring-neck is an outstanding example, this does not hold good. At The Oaks, in one morning, I have seen and identified twelve species of Ducks, many of which are very common in other situations.

If more care would be exercised in separating the Ring-neck from the other Scaup, by sportsmen in general, it is my opinion this species would be found to occur in more localities than is now supposed.—ALEXANDER SPRUNT, JR., *Charleston Museum, Charleston, S. C.*

**The Egret in Clinton and Lycoming Counties, Pennsylvania.**—

Two specimens of the Egret (*Casmerodius egretta*) taken in central Pennsylvania have recently been brought to my attention. The first was taken on July 22, 1921, at the paper mill basin of the New York and Pennsylvania Company, near Lock Haven, Clinton County, by Mr. C. R. Hullihan of Lock Haven. The bird's leg was injured. It had arrived during a severe storm which followed a period of intense heat. This specimen is now the property of the Lock Haven High School.

On the same date another Egret was taken at Williamsport, Lycoming County, along the Susquehanna River. The two specimens were mounted at Williamsport, but further details of the capture of the second specimen have not been ascertained. I am indebted to Professor Nelson P. Benson, Superintendent of Lock Haven Schools, and Mr. John B. Ross, Division Supervisor of the State Game Commission, for bringing these interesting records to light.—GEORGE MIKSCH SUTTON, *Game Commission, Harrisburg, Pennsylvania.*

**Spring Record for American Egret at Princeton, N. J.**—On April 11, 1926, we discovered what we believe to be the first spring record for the American Egret in New Jersey in recent years. We were visiting all the ponds about Princeton in search of Ducks and on looking up Plainsboro



Pond from the road that runs along the foot of it saw a White Heron at the head of the pond. We walked carefully up the side of the pond and got within twenty-five yards of the bird. There was no doubt as to the identification, for we saw very plainly the yellow bill, black legs, and best of all the beautiful long plumes extending noticeably beyond the tail. The bird was rather suspicious and after fully satisfying ourselves as to its identity we left without disturbing it, hoping it would stay a few days, but on a subsequent trip, April 13, we were unable to find it.

At the same pond and on the same day, April 11, we saw two Lesser Yellow-legs feeding with two Greaters. This gave us an excellent opportunity to study and compare the two and the much smaller size of the Lessers left no doubt as to their identity. We clearly saw the yellow legs and white rump in flight. The Lesser Yellow-legs seems to be rare as an inland spring migrant in New Jersey.—H. C. DEIGNAN AND RUSSELL RICHARDSON, JR., *Princeton, N. J.*

**Great Blue Heron (*Ardea h. herodias*) alighting in water.**—On April 4, 1926, while on the shore of Lake Michigan at Glencoe, Ill., it was my good fortune to see a flock of seven Great Blue Herons get up off the surface of the lake on which they had evidently been resting, about one-quarter mile out. They got under way very slowly, gradually rising until three or four hundred yards in the air, and flew north parallel with the shore. There are no reefs, or sandbars, nor anything floating, on which they could have stood, the water being at least two hundred feet deep at this point. They were in migration, as ten were seen all afternoon, the flock of seven being the largest flock that has been seen in this region for many years.—FRANK G. GRASSETT, *Glencoe, Ill.*

**The Sandhill Crane in Luce County, Michigan.**—I have only had a few observations of the Sandhill Crane (*Grus mexicana*) and these are from about two miles south of McMillan, Michigan.

One was seen flying low over the north end of McCormick Lake on April 15, 1922. None were seen from then until April 2, 1925, when two were seen flying rather low at about sundown, towards the northeast where there was a small spruce swamp. At about the same time on the next day, April 3, two were seen going the same direction. Whether they spent the night at the swamp or not is yet to be found out, but it appears quite certain that they did not breed near here, or they would have been more in evidence.—OSCAR MCKINLEY BRYENS, *1312 Third St., St. Joseph County, Michigan.*

**Little Black Rail Nesting in Illinois.**—In the Kent Scientific Museum of Grand Rapids, Mich., there are three of the eggs of the Little Black Rail, taken June 19, 1875, at Riverside, Ill., by F. C. DeWitt. The Museum catalog shows the number in the set to have been, originally, ten. The specimens came to the Museum in the J. W. Velie collection.

As this doubtless is the set which established the record noted by Nelson,

*rancepsii* (Smith).—OUTRAM BANGS AND JAMES L. PETERS, *Museum Comp. Zool., Cambridge, Mass.*

**The Barn Owl (*Tyto pratincola*) in Michigan.**—My first observation of this species was about six miles east of Vicksburg, Michigan, on June 6, 1925, when two were seen about dusk. I was at this place every day until June 27, and saw one on thirteen different evenings, including the date when I first saw it. I was informed by a farmer that he had seen a pair of this species nearly every day about the barn and believed that they were nesting somewhere about the farm buildings, but I have not yet found out for sure if they did. So far as I could determine, no harm was done to poultry by the Owls.—OSCAR MCKINLEY BRYENS, 1312 Third St., St. Joseph County, Michigan.

**Short-eared Owl Breeding in Illinois.**—On May 10, 1925, in company with several members of the Chicago Ornithological Society I found a nest and six eggs of the Short-eared Owl (*Asio flammeus*) in the swamp at Beach, Lake Co., Illinois. Returning on the 16th, two young were found to be hatched and the remaining eggs on the point of hatching. As available publications show but one record of this species breeding in Illinois (Kennicott, Cat. Animals Observed in Cook Co., Ill.; Trans. Ill. State Agr. Soc., I, 1885), this may be the second.—PIERCE BRODKORB, Evanston, Illinois.

**The Name of the East African White-browed Coucal.**—In 'Novitates Zoologicae,' xxix, 1922, p. 50, Dr. van Someren separated the East African *Centropus superciliosus* from the typical birds of Southern Arabia under the name *Centropus superciliosus intermedius*. Mr. Bangs has called my attention to the fact that the name *intermedius* was used by Hume in 1873 (Stray Feathers, i, p. 454) for a Coucal which he called at the time *Centrococcyx intermedius*. This was later shown to be a race of *Centropus sinensis*,—the *Centropus sinensis intermedius* (Hume) of Tenasserim, Siam, and Burma. Consequently the name *intermedius* cannot be used for any other *Centropus* and van Someren's name is therefore preoccupied. In its place I propose the name *Centropus superciliosus furvus* nom. nov.—HERBERT FRIEDMANN, *Museum Comp. Zool., Cambridge, Mass.*

**Arkansas Flycatcher Nesting at Melville, Sask.**—In 1921 a pair of Arkansas Kingbirds made their nest on a telephone pole in the lane behind my house. I had never seen any of these birds in this part of Saskatchewan and I mentioned the matter to Mr. Mitchell, provincial naturalist, and he stated that he had not heard of any quite so far north although he had a record of them a very little farther south in another part of the province. These birds nested in the same place for four years, but in 1925 failed to appear. Ever since they arrived in 1921 I have kept a sharp lookout for Arkansas Kingbirds in this district and I have never been able to locate another pair in spite of the fact that I do considerable driving

through the country. It seems to me that this is rather a remarkable instance of migration. As there do not seem to be any others in this locality it would look as though the same two birds must have come back every year. As they did not come together it does not seem possible that one of the old birds could have picked up a new mate.

Several instances of Mallard Ducks nesting in trees have been reported to me. Mr. J. A. M. Patrick, K. C., of Yorkton, Saskatchewan, found one nest about two years ago and last year Harry Butcher of Punnichy, Saskatchewan, found two nests both being in Crows' nests in Poplar trees near water. I have also heard of other cases in this district.—LOUIS T. McKIM, *Melville, Sask.*

**Another Arkansas Kingbird (*Tyrannus verticalis*), in Maine.—**

I secured a young male Arkansas Kingbird from Woolwich, Maine, November 23, 1925.

This seems to be the fifth specimen to be recorded from this state. Previous records are as follows: A specimen taken in October 1864, was reported by Dr. Henry Bryant<sup>1</sup> as taken at "Plympton" Maine, but shown by Henry A. Purdie<sup>2</sup> to have been taken at Elliot; one was seen frequently at Halowell from November 12, 1920 to January 15, 1921<sup>3</sup>; one was seen at Cutt's Island, Kittery, Aug. 25, 1925<sup>4</sup>; and one was seen at Saco early in December, 1925.<sup>5</sup>

The bird here recorded seems to be the second record based upon a preserved specimen.—HERBERT M. W. HAVEN, *500 Forest Avenue, Portland, Maine.*

**The European Starling in Mississippi and in Florida.**—On November 24, 1925, I saw a flock of about fifty Starlings in the National Military Park at Vicksburg, Miss., and on January 26, 1926, a flock of four Starlings flew by me at Wakulla Beach, Florida. These instances show the rapid extension of range of this bird both west and south at the present time.—CHARLES W. TOWNSEND, *Ipswich, Mass.*

**Is the Starling Migratory?**—The Starling arrived at Columbia, S. C., last November, 1925, apparently with the intent to stay. I have knowledge of two earlier records for Columbia, both by Dr. J. H. Taylor of this city. On March 1, 1922, Dr. Taylor, reports having seen a flock of fifteen Starlings passing over the city at an altitude of thirty or forty feet, and flying in a northward direction. Again, on March 13, 1925, Dr. Taylor saw a flock of five or six Starlings flying overhead, he recognizing them by their peculiar flight.

On November 20, 1925, while in the vicinity of Camp Jackson, several

<sup>1</sup> 1865: Bryant, *Proc. Boston Soc. N. H.*, X: 96.

<sup>2</sup> 1876: Purdie, *Bull. Nuttall Orn. Club*, 1: 73.

<sup>3</sup> 1921: Miller, 'Auk,' XXXVIII: 603.

<sup>4</sup> 1926: Townsend, 'Auk,' XLIII: 99.

<sup>5</sup> 1926: Abbott, *Maine Naturl.* V

the Ring-necks were always the commonest Duck he had. As an illustration, a shooting party of ten guns made a bag of 80 Ducks during last January, and over 70 were Ring-necks, no particular comment being caused. Food is planted for them, and the nature of the country suits them. To a large extent they feed upon pondweeds (*Najas*) and the water-lily (*Castalia*), I took a male with four of the tubers of the latter in his throat, which had evidently just been swallowed and gave the throat a peculiar, swollen appearance.

This species on the South Carolina coast prefers freshwater at all times. I do not remember ever having seen one on salt water, although they doubtless do occur there at times. They also seem to show a decided preference for the larger backwaters and reserves which are wooded, or bordered by the cypress swamps, and resort to the open areas of water found in such localities. In the more open, ricefields they are much less common, and occur only erratically. Just why this should be is hard to say. Many of our Ducks are as common in the reserves as they are in the ricefields, and vice versa, but in some cases, of which the Ring-neck is an outstanding example, this does not hold good. At The Oaks, in one morning, I have seen and identified twelve species of Ducks, many of which are very common in other situations.

If more care would be exercised in separating the Ring-neck from the other Scaup, by sportsmen in general, it is my opinion this species would be found to occur in more localities than is now supposed.—ALEXANDER SPRUNT, JR., *Charleston Museum, Charleston, S. C.*

**The Egret in Clinton and Lycoming Counties, Pennsylvania.**—

Two specimens of the Egret (*Casmerodius egretta*) taken in central Pennsylvania have recently been brought to my attention. The first was taken on July 22, 1921, at the paper mill basin of the New York and Pennsylvania Company, near Lock Haven, Clinton County, by Mr. C. R. Hulihan of Lock Haven. The bird's leg was injured. It had arrived during a severe storm which followed a period of intense heat. This specimen is now the property of the Lock Haven High School.

On the same date another Egret was taken at Williamsport, Lycoming County, along the Susquehanna River. The two specimens were mounted at Williamsport, but further details of the capture of the second specimen have not been ascertained. I am indebted to Professor Nelson P. Benson, Superintendent of Lock Haven Schools, and Mr. John B. Ross, Division Supervisor of the State Game Commission, for bringing these interesting records to light.—GEORGE MIKSCH SUTTON, *Game Commission, Harrisburg, Pennsylvania.*

**Spring Record for American Egret at Princeton, N. J.**—On April 11, 1926, we discovered what we believe to be the first spring record for the American Egret in New Jersey in recent years. We were visiting all the ponds about Princeton in search of Ducks and on looking up Plainsboro

Pond from the road that runs along the foot of it saw a White Heron at the head of the pond. We walked carefully up the side of the pond and got within twenty-five yards of the bird. There was no doubt as to the identification, for we saw very plainly the yellow bill, black legs, and best of all the beautiful long plumes extending noticeably beyond the tail. The bird was rather suspicious and after fully satisfying ourselves as to its identity we left without disturbing it, hoping it would stay a few days, but on a subsequent trip, April 13, we were unable to find it.

At the same pond and on the same day, April 11, we saw two Lesser Yellow-legs feeding with two Greaters. This gave us an excellent opportunity to study and compare the two and the much smaller size of the Lessers left no doubt as to their identity. We clearly saw the yellow legs and white rump in flight. The Lesser Yellow-legs seems to be rare as an inland spring migrant in New Jersey.—H. C. DEIGNAN AND RUSSELL RICHARDSON, JR., *Princeton, N. J.*

**Great Blue Heron (*Ardea h. herodias*) alighting in water.**—On April 4, 1926, while on the shore of Lake Michigan at Glencoe, Ill., it was my good fortune to see a flock of seven Great Blue Herons get up off the surface of the lake on which they had evidently been resting, about one-quarter mile out. They got under way very slowly, gradually rising until three or four hundred yards in the air, and flew north parallel with the shore. There are no reefs, or sandbars, nor anything floating, on which they could have stood, the water being at least two hundred feet deep at this point. They were in migration, as ten were seen all afternoon, the flock of seven being the largest flock that has been seen in this region for many years.—FRANK G. GRASETT, *Glencoe, Ill.*

**The Sandhill Crane in Luce County, Michigan.**—I have only had a few observations of the Sandhill Crane (*Grus mexicana*) and these are from about two miles south of McMillan, Michigan.

One was seen flying low over the north end of McCormick Lake on April 15, 1922. None were seen from then until April 2, 1925, when two were seen flying rather low at about sundown, towards the northeast where there was a small spruce swamp. At about the same time on the next day, April 3, two were seen going the same direction. Whether they spent the night at the swamp or not is yet to be found out, but it appears quite certain that they did not breed near here, or they would have been more in evidence.—OSCAR MCKINLEY BRYENS, *1312 Third St., St. Joseph County, Michigan.*

**Little Black Rail Nesting in Illinois.**—In the Kent Scientific Museum of Grand Rapids, Mich., there are three of the eggs of the Little Black Rail, taken June 19, 1875, at Riverside, Ill., by F. C. DeWitt. The Museum catalog shows the number in the set to have been, originally, ten. The specimens came to the Museum in the J. W. Velie collection.

As this doubtless is the set which established the record noted by Nelson,



to which an item in the April "General Notes" refers, I thought it might be of passing interest to readers to learn that these specimens, taken more than fifty years ago, have been preserved.—EDW. R. FORD, *Grand Rapids, Mich.*

**Correction.**—Several notes on the Little Black Rail appearing in recent numbers of 'The Auk,' led me to look over the article on page 88 in the January 1923 issue, in which I described the eastern bird as different from the Jamaican form.

I omitted to state, that the type specimen, *Creciscus jamaicensis stoddardi*, collected by Mr. H. L. Stoddard, was an adult male—in full breeding plumage.—HENRY K. COALE, *Highland Park, Ill.*

**Krider's Hawk (*Buteo borealis krideri*) in Arkansas.**—On November 2, 1925, a male of this species was shot near Fayetteville by one of the students in the Department of Zoology of the University of Arkansas, who neglected to bring the specimen to the attention of those in charge in time to save the skin. Only the primaries, secondaries, and rectrices were saved, and these are now in the University collection. They were submitted to Dr. H. C. Oberholser, who identified them as belonging to the foregoing species. The stomach of this specimen contained two entire front legs of a cotton-tail.

On December 9, 1925, another male was secured from a farmer who had caught it in a steel trap set beside a dead chicken in his field. The Hawk's stomach was empty. This specimen was also submitted to Dr. Oberholser for his verification. The skin is now in the writer's collection. Within my knowledge, these two records are the first for the state.—ALBERT LANO, *Fayetteville, Arkansas.*

**Red-tailed Hawk Killing Snakes.**—April 4, 1926, I made a trip over the country towards Buckman. A few miles west of Santa Fe the road follows for several miles the bottom of a narrow valley fringed with rim-rocks on the south side. Some of these cliffs are of considerable proportions and serve as nesting sites for Red-tailed Hawks, Ravens, White-throated Swifts and other birds. Scanning the rocks through my field-glasses I discovered a male Red-tail sitting on a crag. While I was watching the bird, it suddenly dropped down to the base of the cliff, and I could see, that a fierce struggle was taking place. I was not near enough to see, what actually happened, but I could often see the wings of the Hawk raised above the intervening low sagebrush and judged, that the bird was continually changing position. I hurried as fast as I could towards the spot, and when I was about fifty feet away, the Hawk took flight carrying in its talons a medium sized rattlesnake.

May 14, 1921, I saw in the same neighborhood a Red-tail carry off a four foot bull snake. I saw the Hawk pounce, but was too far away to see, what took place. A few moments later the Hawk reappeared carrying something heavy. The bird, with a great flapping of wings, struggled to a



height of about two hundred feet, then spread its wings and sailed towards the west. During its upward flight it came straight over my head about fifty feet up, and I had no trouble to determine, that the object it carried was a quite large bull snake.—J. K. JENSEN, *U. S. Indian School, Santa Fe, N. M.*

**Golden Eagle at Houston, Texas.**—On Feb. 28, 1926, a Golden Eagle (*Aquila chrysaetos*) was shot by H. F. Lindley, at Katy, Texas. It has been mounted, being a well plumaged specimen.—ROBT. B. LAWRENCE, *Houston, Tex.*

**The Validity of *Nisuioides morelii* Pollen.**—*Nisuioides morelii* Pollen was described from a series of eight birds, brought alive, from Tamatave, western Madagascar to Reunion in 1866. The species was made the type of a distinct genus on a single character, that of the commissure being straight from the end-hook to the gape, whereas in *Astur* or *Accipiter* the commissure is always festooned. The description of plumage of *N. morelii* and of *Astur* (or *Accipiter*) *francesii* Smith are to all intent identical, and in size the two are the same.

Apparently no specimens strictly referable to *Nisuioides* have since been taken, and all descriptions appearing in literature seem to have been re-copied from the original or taken from Grandidier's plate and figures. Recent collections made in the region whence *Nisuioides* came, contain only birds that must be placed with *Astur francesii*.

In the Museum of Comparative Zoology there is a series of seven skins (one adult male, six more or less immature examples of both sexes) from southwestern Madagascar, that exhibits nearly every possible variation, from a bill with a very conspicuous festoon to one in which the commissure is nearly straight; in some birds the festoon is not equally developed on both sides of the bill and in one the cutting edge of the maxilla is so nearly a straight line, that we should have to call this specimen *Nisuioides*, if we thought there was such a genus.

We believe that there is no such bird as *Nisuioides*, and that the type of this supposed genus is nothing more than an example of *Astur francesii* with the commissure presenting a straight line, possibly from extreme individual variation, possibly because the type had been kept alive in captivity and may have worn down its bill on the cage bars or on food unsuited to it. It must be borne in mind that the cutting edge of the maxilla of *A. francesii* and allied species, when festooned, is very thin and papery, and gives one the impression that it would soon wear away if brought in contact with hard objects.

Having satisfied ourselves that *Nisuioides* is not a valid genus, we wrote to Dr. Hartert and asked him for his opinion based on the specimens at Tring. He replied that he not only heartily agreed with us, but that he, wholly independently, had reached the same conclusion himself.

We therefore sink *Nisuioides morelii* Pollen in the synonymy of *Astur*

*ranceessii* (Smith).—OUTRAM BANGS AND JAMES L. PETERS, *Museum Comp. Zool., Cambridge, Mass.*

**The Barn Owl (*Tyto pratincola*) in Michigan.**—My first observation of this species was about six miles east of Vicksburg, Michigan, on June 6, 1925, when two were seen about dusk. I was at this place every day until June 27, and saw one on thirteen different evenings, including the date when I first saw it. I was informed by a farmer that he had seen a pair of this species nearly every day about the barn and believed that they were nesting somewhere about the farm buildings, but I have not yet found out for sure if they did. So far as I could determine, no harm was done to poultry by the Owls.—OSCAR MCKINLEY BRYENS, *1312 Third St., St. Joseph County, Michigan.*

**Short-eared Owl Breeding in Illinois.**—On May 10, 1925, in company with several members of the Chicago Ornithological Society I found a nest and six eggs of the Short-eared Owl (*Asio flammeus*) in the swamp at Beach, Lake Co., Illinois. Returning on the 16th, two young were found to be hatched and the remaining eggs on the point of hatching. As available publications show but one record of this species breeding in Illinois (Kennicott, *Cat. Animals Observed in Cook Co., Ill.*; *Trans. Ill. State Agr. Soc.*, I, 1885), this may be the second.—PIERCE BRODKORB, *Evanston, Illinois.*

**The Name of the East African White-browed Coucal.**—In 'Novitates Zoologicae,' xxix, 1922, p. 50, Dr. van Someren separated the East African *Centropus superciliosus* from the typical birds of Southern Arabia under the name *Centropus superciliosus intermedius*. Mr. Bangs has called my attention to the fact that the name *intermedius* was used by Hume in 1873 (*Stray Feathers*, i, p. 454) for a Coucal which he called at the time *Centrococcyx intermedius*. This was later shown to be a race of *Centropus sinensis*,—the *Centropus sinensis intermedius* (Hume) of Tenasserim, Siam, and Burma. Consequently the name *intermedius* cannot be used for any other *Centropus* and van Someren's name is therefore preoccupied. In its place I propose the name *Centropus superciliosus furvus* nom. nov.—HERBERT FRIEDMANN, *Museum Comp. Zool., Cambridge, Mass.*

**Arkansas Flycatcher Nesting at Melville, Sask.**—In 1921 a pair of Arkansas Kingbirds made their nest on a telephone pole in the lane behind my house. I had never seen any of these birds in this part of Saskatchewan and I mentioned the matter to Mr. Mitchell, provincial naturalist, and he stated that he had not heard of any quite so far north although he had a record of them a very little farther south in another part of the province. These birds nested in the same place for four years, but in 1925 failed to appear. Ever since they arrived in 1921 I have kept a sharp lookout for Arkansas Kingbirds in this district and I have never been able to locate another pair in spite of the fact that I do considerable driving

through the country. It seems to me that this is rather a remarkable instance of migration. As there do not seem to be any others in this locality it would look as though the same two birds must have come back every year. As they did not come together it does not seem possible that one of the old birds could have picked up a new mate.

Several instances of Mallard Ducks nesting in trees have been reported to me. Mr. J. A. M. Patrick, K. C., of Yorkton, Saskatchewan, found one nest about two years ago and last year Harry Butcher of Punnichy, Saskatchewan, found two nests both being in Crows' nests in Poplar trees near water. I have also heard of other cases in this district.—LOUIS T. McKIM, *Melville, Sask.*

**Another Arkansas Kingbird (*Tyrannus verticalis*), in Maine.**—I secured a young male Arkansas Kingbird from Woolwich, Maine, November 23, 1925.

This seems to be the fifth specimen to be recorded from this state. Previous records are as follows: A specimen taken in October 1864, was reported by Dr. Henry Bryant<sup>1</sup> as taken at "Plympton" Maine, but shown by Henry A. Purdie<sup>2</sup> to have been taken at Elliot; one was seen frequently at Halowell from November 12, 1920 to January 15, 1921<sup>3</sup>; one was seen at Cutt's Island, Kittery, Aug. 25, 1925<sup>4</sup>; and one was seen at Saco early in December, 1925.<sup>5</sup>

The bird here recorded seems to be the second record based upon a preserved specimen.—HERBERT M. W. HAVEN, *500 Forest Avenue, Portland, Maine.*

**The European Starling in Mississippi and in Florida.**—On November 24, 1925, I saw a flock of about fifty Starlings in the National Military Park at Vicksburg, Miss., and on January 26, 1926, a flock of four Starlings flew by me at Wakulla Beach, Florida. These instances show the rapid extension of range of this bird both west and south at the present time.—CHARLES W. TOWNSEND, *Ipswich, Mass.*

**Is the Starling Migratory?**—The Starling arrived at Columbia, S. C., last November, 1925, apparently with the intent to stay. I have knowledge of two earlier records for Columbia, both by Dr. J. H. Taylor of this city. On March 1, 1922, Dr. Taylor, reports having seen a flock of fifteen Starlings passing over the city at an altitude of thirty or forty feet, and flying in a northward direction. Again, on March 13, 1925, Dr. Taylor saw a flock of five or six Starlings flying overhead, he recognizing them by their peculiar flight.

On November 20, 1925, while in the vicinity of Camp Jackson, several

<sup>1</sup> 1865: Bryant, Proc. Boston Soc. N. H., X: 96.

<sup>2</sup> 1876: Purdie, Bull. Nuttall Orn. Club, 1: 73.

<sup>3</sup> 1921: Miller, 'Auk,' XXXVIII: 603.

<sup>4</sup> 1926: Townsend, 'Auk,' XLIII: 99.

<sup>5</sup> 1926: Abbott, Maine Naturl. V

miles east of Columbia, I saw a flock of some two hundred Starlings fly across the road. The birds were flying in a flock formation that was decidedly drawn out from front to rear. Two days later about fifty birds were observed walking about on the lawn of the University campus. Very shortly the birds were seen commonly about the city. Dr. Taylor brought in the first specimen.

With its arrival in numbers last autumn the Starling appeared to have become a permanent addition to the local avifauna. It attracted considerable attention to itself and seemed to have adopted as peculiarly its own the region embraced in the State House Square. Here in the evening the hubbub of miscellaneous calls, squeaks, and whistles tended to drown out the lesser cries of the English Sparrow, another ever present evil. During the period of greatest abundance a gentleman told me that he had counted the small flocks of Starlings as they flew into the trees about his house one evening and that the number of individuals that came was between twelve and fourteen hundred.

After the first week in April, I suddenly became aware that I was no longer seeing Starlings. I at once visited a number of their favorite haunts and made inquiries concerning them, but without locating any birds. The Starlings had disappeared. I find that the birds were common up to March 23, 1926, and my last record is for several birds seen April 1.

In 'The Auk' for April, 1926, I note what Mr. C. J. Hunt has to say regarding the appearance of the Starling (four birds) in Chicago last December, and that in spite of a winter of much snow and sub-zero weather. Perhaps the same weather has aided materially in causing the influx of these birds into this region at the same time. What seems especially interesting, however, is the total absence of the birds now that warm weather has returned.—THOMAS SMYTH, *Columbia, S. C.*

**Further Notes on the Starling in Canada.**—I have recently found two additional records of the taking of the Starling in Canada, the first, of a bird on Wolfe Island in Lake Ontario, on Oct. 10, 1921, and the second, of a bird in Nova Scotia, on Dec. 1, 1915. The one from Wolfe Island was secured by Mr. Harley White, and identified by Prof. A. B. Klugh at a meeting of the Fontenac Naturalist's Club held in the Medical Laboratories Building, Queen's University, Kingston, Ont., on Oct. 11, 1921. At the time Prof. Klugh understood that Mr. White intended to report his capture in the 'Ottawa Field-Naturalist,' but this it appears was not done. However, Prof. Klugh later on published the fact in his "Nature's Diary," in the 'Farmer's Advocate,' for Nov. 1, 1923. The skin of this bird is now in the Victoria Memorial Museum at Ottawa, its number being 17372. I am indebted to Mr. R. Owen Merriman for first calling my attention to this record, and to Prof. Klugh for the later details concerning it. As regards the bird from Nova Scotia, this was picked up dead and much emaciated at Halifax City. It was mounted and placed in the Provincial Museum in the Technical College (Acc. No. 4306).

I am indebted to Mr. Harrison F. Lewis for information eventually leading to the obtaining of this record, and to Mr. Tufts for the exact date and whereabouts of the specimen. The Halifax bird will thus become the first record for Canada.—HENRY MOUSLEY, 469 Harvard Ave., Montreal.

**Blackbird Roosts.**—Complaints about roosts of Blackbirds are a very dependable constituent of correspondence of the Biological Survey. These



roosts are chiefly populated by Crow Blackbirds or Purple Grackles, associated with which in some cases are Robins, Purple Martins, Starlings, and English Sparrows. The number of birds in the roosts is variously estimated as from 'hundreds' to 'millions.' The objectionable features of these congregations include noise which wakens people earlier in the morning than they wish, or even keeps them awake most of the night; the driving out of other birds; copious droppings from the birds which render passage on side-



walks under the roosts very disagreeable, and makes it impracticable to spend evenings outside of houses in the roosting areas; the accumulation of filth, largely excrement, which kills grass, and, especially in wet weather produces offensive odors; and actual damage to trees by the breaking off of branches. In some cases the presence of Blackbird roosts is said to have seriously depreciated the value of residential properties. Remedial measures including drastic trimming of the trees, the use of smudges and noise-making devices, the firing of roman candles, shotguns, and rifles, and playing powerful streams of water on the birds, are almost unanimously reported as ineffective. Only extreme persistence in the use of the most drastic of these remedies seems sufficient to cause the birds to move. In despair people have cut down prized shade trees to rid themselves of the nuisance. Complaints about Blackbird roosts have been received in every month from March to November (the largest number in July), and correspondents have stated that while the birds formerly were present only in spring and fall, they have increased in numbers and occupy the roosts almost continuously. The localities from which objectionable Blackbird roosts have been reported in recent years range from southern New York, Virginia and Tennessee to Kansas, Iowa and Illinois. They are plotted on the accompanying map and show evident latitudinal restriction, adequate reasons for which are not altogether obvious. A suggested explanation for restriction of shade-tree roosts to a narrow belt is that Blackbirds roost in marshes in both the Gulf Coast and Great Lakes regions, and they may not congregate in large roosts in the rather narrow strips of territory between the shade-tree, and the marsh, roosting areas.—W. L. McATEE, *Biological Survey, Washington, D. C.*

**Unseasonable Occurrence of the Rusty Blackbird in South Carolina.**—On April 27, 1926, while investigating bird life at Goose Creek, a water reservoir, seventeen miles north of Charleston, S. C., the writer noted several Rusty Blackbirds (*Euphagus carolinus*), walking about on floating vegetation close by a causeway which traverses the reservoir. The birds allowed very close approach, the straw-colored iris being plainly visible, although the birds were studied also with a six power binocular. Some hundreds of yards away, many more were seen, both sexes being represented.

The fact that these birds were noted on this date is an interesting fact, as the latest record heretofore has been March 7, which is quoted by Mr. Arthur T. Wayne in his 'Birds of South Carolina.' Not having an opportunity for collecting a specimen at that time, I returned to the reservoir the morning of the 29th, in company with Mr. E. B. Chamberlain, and we were glad to see that the birds were still in evidence, and collected two males. One of these birds was moulting the feathers about the head, and throat, while the other had completed the moult. Both were singing when shot, and many more were seen, about forty or fifty in all. This fact may be explained by reason of the present season being rather later than usual,



but, at the same time not to the extent of throwing back the migration of a species to such an extent as the above.

It might also be of interest to state that on the day these birds were first seen, the writer spent the day in the field in company with Mr. Lester L. Walsh, of Ridgewood, N. J. and a total of one hundred and twelve species was the result of our observations, from 7 a.m. to 7 p.m. This is the highest number of birds ever seen in one day in South Carolina, and it would be interesting to know how this record compares with other sections of the country. Mr. Walsh tells me that he once saw one hundred and four species in one day, in the vicinity of Barnegat Bay, N. J., this being his highest mark.—ALEXANDER SPRUNT, JR., *Charleston, S. C.*

**First Record of the Lark Bunting for Ontario.**—The wandering propensity of the Lark Bunting (*Calamospiza melanocorys*) is well known but up to the present time the name of the species has not been included in any list of Ontario birds. While collecting during the summer of 1925 at Lake Abitibi (Ontario-Quebec boundary) the writer secured a female specimen (R.O.M.Z. No. 25, 10, 16, 159) in the clearing at Lowbush on June 5. Three days later, what was thought to be another female was observed but not being familiar with the species in the field this observation is not considered certain. During the subsequent two months no others were seen.—L. L. SNYDER, *Royal Ontario Museum of Zoology, Toronto, Ontario.*

**Migration of the Purple Martin at Vicksburg, Michigan.**—For thirty years I have kept record of the arrival and departure of the Purple Martin (*Progne subis subis*) at Vicksburg, Mich.

In the following table are given the data of arrival and number of individuals seen for each year from 1896 to 1926 with the exception of 1899; and the date of departure for all but three years.

The average arrival date is April 8 and that of departure August 25.

1896	April 11	6	Aug. 24
1897	March 29	2	Aug. 27
1898	April 13	2	Sept. 1
1899			
1900	April 1	2	Aug. 23
1901	April 10	1	Aug. 28
1902	April 9	1	Aug. 20
1903	May 8	3	Sept. 3
1904	April 6	25	Aug. 20
1905	April 14	2	
1906	March 6	4	Aug. 23
1907	April 4	3	Sept. 2
1908	April 15	2	Aug. 15
1909	April 14	3	Sept. 3
1910	April 9	1	Sept. 1

1911	April 13	3	Aug. 24
1912	April 5	2	Aug. 30
1913	April 12	5	Sept. 1
1914	April 13	2	Aug. 27
1915	April 14	3	Aug. 18
1916	April 10	2	Aug. 20
1917	April 14	1	
1918	April 2	1	Aug. 23
1919	March 24	1	Aug. 19
1920	March 25	1	Aug. 29
1921	April 4	2	Aug. 27
1922	March 27	1	Aug. 24
1923	April 7	3	Aug. 20
1924	April 4	3	Aug. 20
1925	April 7	6	Aug. 27
1926	April 10	3	

F. W. RAPP, Vicksburg, Michigan.

**Prothonotary Warbler at Washington, D. C.**—On May 9, 1926, I saw a male Prothonotary Warbler on the lower guard rail timbers of the railroad bridge over Neabsco Creek. I watched it from the top of the bridge for fully five minutes. At no time during this period of observation was it at a greater distance from me than twenty-five or thirty feet, and aided by an 8X Zeiss glass its rich orange head, ashy-gray rump and partly white outer tail feathers were readily discernible. To have watched it longer would have been dangerous, as a train was rapidly approaching the bridge. However, it was with some hesitancy that I relinquished my stand, well realizing the improbability of my ever seeing the bird again.—BRENT M. MORGAN, Washington, D. C.

**Spotted Egg of Swainson's Warbler.**—In a set of three eggs of the Swainson's Warbler (*Limnethlypis swainsoni*), found June 6, 1924 near Mt. Pleasant, South Carolina, one egg is faintly though distinctly speckled around the larger end with reddish brown; the other two eggs are entirely unmarked; all three have a distinct greenish tinge. They measure, respectively, 75 × 55 (spotted one); 75 × 60; 74 × 60. When found, they contained very small embryos.

The nest is extremely bulky but compactly and beautifully made of twigs, leaves, grape vine and pine needles: it is thickly lined with the latter article. It was three feet from the ground, supported by vines and briers and located in a dense, though dry, swamp.—EDWARD VON S. DINGLE, Mount Pleasant, S. C.

**Warblers at Sea.**—On my way from South America in 1921, our steamship, the Prins Frederik Hendrik of the Royal Dutch West India Mail, touched at Porto Rico, Hayti, October 26, and left the same night for New York. We were in the wake of a bad storm; and it was still very

rough. The next morning, October 27, we found five warblers on board: a male Black-throated Blue Warbler (*Dendroica caerulescens caerulescens*), an Oven-bird (*Seiurus aurocapillus*), a Northern Water-Thrush (*Seiurus noveboracensis noveboracensis*), a male Northern Yellow-throat (*Geothlypis trichas brachidactyla*), and a female Redstart (*Setophaga ruticilla*).

The Oven-bird would not permit anyone to come very near it and kept out of reach in the rigging. The Northern Yellow-throat rested on the railing, and when approached would fly off and return to some other part of the railing. The others were apparently exhausted and were resting on the after deck. They could easily be caught and made no attempt to escape other than to hop wearily under the steamer-chairs occupied by the passengers.

Shortly after lunch, it must have been about 2:00 o'clock, when one of the passengers came near the Yellow-throat, it left the steamship and did not return. Heading in a southerly direction the bird flew at about the height of the ship's railing as long as I could keep it in sight. The Oven-bird also disappeared in the afternoon, but the weary trio remained with us all day. The next morning they were gone.—THOMAS E. PENARD, Arlington, Mass.

**Carolina Wren in Northern Illinois.**—In spite of the fact that the Carolina Wren (*Thryothorus l. ludovicianus*) is fairly numerous in central Illinois and common in the southern part of the state, it is a rare bird in the northern portion. March 21, 1926, a male in very soiled plumage was found dead in a garage in Wilmette, Cook Co., Illinois, by Mr. Dorland Davis of that place, and was presented to me in the flesh. Mr. Davis writes me that he first saw it on February 1st.—PIERCE BRODKORB, Evanston, Illinois.

**Additions to the New Hampshire List.**—In 'The Auk' for April 1923 (vol. XL, p. 352) were mentioned eight additions to Dr. G. M. Allen's List of the Birds of New Hampshire (1903). It may be convenient to have further additions, ten in number, brought together here. First I give those that have not, I believe, been recorded; then others, with references to place of publication.

*Sterna paradisaea*, ARCTIC TERN. Mr. C. F. Goodhue of Webster has in his collection three specimens taken by Mr. E. Nudd at Hampton, September, 1903.

*Marila valisineria*, CANVASBACK.—Mr. G. F. Wentworth of Dover has in his collection a specimen taken at Dover Point about 1915. Dr. G. M. Allen tells me that Mr. C. F. Hardy, Jr., got a specimen from Seabrook, where it was shot Nov. 4, 1908. Two or three other less definite reports have also come to me.

*Bubo virginianus pallescens*, WESTERN HORNED OWL.—Mr. Goodhue has in his collection a specimen that was taken at Boscawen, Oct. 15, 1909.

*Speotyto cunicularia hypogaea*, BURROWING OWL. Mr. Wentworth has

in his collection a specimen that was picked up dead, in Dover, and brought to him, about Feb. 20, 1922.

*Passerherbulus nelsoni subvirgatus*, ACADIAN SHARP-TAILED SPARROW. Mr. Goodhue has in his collection a specimen that was taken by Mr. S. A. Shaw at Hampton.

I am obliged to the gentlemen above named for courteously allowing me to report these specimens, and to Mr. O. Bangs and Mr. J. L. Peters for assistance with specimens for comparison.

*Phasianus colchicus* subsp.?—The hybrid "Ring-Necked Pheasant" is well established as a resident and breeding bird in southern New Hampshire.

Other birds reported from New Hampshire since 1922 are as follows: *Sterna forsteri* (see Forbush, Birds of Mass., I, 104), *Rallus elegans* (l. c., p. 352), *Macrorhamphus griseus scolopaceus* (l. c., p. 399), *Icteria virens virens* (see AUK, XLI, 486).—F. B. WHITE, Concord, N. H.

**Some Water Bird Notes from the Florida East Coast.**—Relatively little has been published about the birds of the Florida east coast, and especially neglected by the ornithologists is that stretch (as long as the coast of Maine), extending from St. Augustine to Sebastian. Half a century ago, Maynard, J. A. Allen, Cory and others studied the bird life of this region. But on the whole, other parts of the state have received a disproportionate amount of attention.

I have spent now a total of nine summers and fourteen winters in the Atlantic section of middle Florida. During most of this time I have made field notes, chiefly in Volusia County. I have done relatively little collecting however, which will account for the fact that I have listed but 191 species. The following notes refer to fourteen species of water birds which my experience indicates are rare or very uncommon here.

1. *Puffinus lherminieri*. AUDUBON'S SHEARWATER. On August 9, 1909, on the beach south of Coronado, I picked up an individual of this species. The bird was half-dead. Sixteen years later to the day, I caught another Audubon's Shearwater, floating helplessly in the edge of the surf south of Daytona Beach. Mr. A. H. Howell informs me that these constitute two of the three records for this species in Florida.

2. *Oceanites oceanicus*. WILSON'S PETREL.—On July 3, 1909, while swimming in the surf at Coronado Beach, I saw four Wilson's Petrels. They passed within a few feet of me, just beyond the breakers. On August 12, 1911, I saw three of these Petrels in the head of Mosquito Inlet.

3. *Fregata aquila*. MAN-O'-WAR BIRD.—I saw one Frigate Bird near Mosquito Inlet in June, 1909, and another there, July 3; on August 4 of that summer, I saw three more, soaring high in the air over the Inlet. On October 19, 1910, during an equinoctial storm, one was seen over Coronado.

4. *Lophodytes cucullatus*. HOODED MERGANSER.—This should not be an uncommon bird here, but I had never seen it until this winter, when on

December 24, I saw a flock of seven near Port Orange, and on March 13, a male near New Smyrna.

5. *Oidemia americana*. AMERICAN SCOTER.—I saw a single female of this species, on the Halifax River, in Daytona Beach, on December 14 and 20, 1925.

6. *Rallus virginianus*. VIRGINIA RAIL.—After a storm, on October 18, 1910, I found a dead Virginia Rail in the salt marshes opposite Coronado.

7. *Creciscus jamaicensis*. LITTLE BLACK RAIL.—A Little Black Rail struck Mosquito Inlet Light-house, on the night of October 6-7, 1923. The bird was stunned, fell to the ground and was captured alive.

8. *Himantopus mexicanus*. BLACK-NECKED STILT.—On March 24, 1923, I saw ten Black-necked Stilts near the Haul-over Canal; on April 15, one near Port Orange; and on May 11, 1924, a flock of six at the same place. This species should not be rare here, but the above constitute my only records in fourteen breeding seasons.

9. *Micropalama himantopus*. STILT SANDPIPER.—On May 4, 1925, I found three Stilt Sandpipers wading in the shallow water of a mud-flat near Port Orange. On the 5th, they were still there, and on the 8th were joined by a fourth, in full breeding plumage. I believe that these constitute the only recent records for peninsular Florida.

10. *Pisobia maculata*. PECTORAL SANDPIPER.—In the fall of 1924, we had an unprecedented rain-fall which flooded local golf links, forming thereby attractive feeding grounds for migratory water fowl and shore birds. On the links of the Clarendon Hotel, I saw a Pectoral Sandpiper on November 19, 20 and 21.

11. *Pisobia fuscicollis*. WHITE-THROATED SANDPIPER.—I took an individual of this species on the beach near Mosquito Inlet, May 9, 1926.

12. *Tringa solitaria*. SOLITARY SANDPIPER.—I have often looked for this species on the fresh-water shores inland, but not until April 15, 1926, was I successful, finding one mid-way between DeLand and Daytona Beach, in the "flat-woods." On the next day, riding south from East Palatka through San Mateo, I found another at a pond's edge a few miles south of the latter place.

13. *Numenius hudsonicus*. HUDSONIAN CURLEW.—On April 19, 1924, at Mosquito Inlet, I saw the only Hudsonian Curlew that I have ever seen on the east coast.

14. *Haematopus palliatus*. OYSTER-CATCHER.—On the ocean beach, a few miles south of Daytona Beach, on October 8, 1923, I saw one Oyster-Catcher, the first and only time I have seen the bird.—R. J. LONGSTREET, Daytona Beach, Florida.

**Rare Birds in Michigan.**—On August 20, 1925, I saw a Willet (*Caloptrophorus semipalmatus*) on the shore of Lake Michigan at Michilinda in Muskegon Co. It was evidently a young bird and was absurdly tame allowing me to follow it closely and twice to approach within twenty yards. A good binocular helped in the identification but the subspecies must remain uncertain.



In December 1924, a Duck was shot on one of the lakes not far from Kalamazoo that is a cross between a Muskovy Duck and a Mallard. It is a male with the characters of both parents showing. The bird was mounted and is now exhibited in a local sporting goods store.

Referring to a note on the Cardinal in Michigan in the April number of 'The Auk':—this bird was rare here twenty years ago but becomes more frequent all the time; it may now be considered common in and around Kalamazoo. Its song is often heard in the city streets and it nests familiarly near the houses. I think it is spreading north. In June 1914 while canoeing down the Kalamazoo river to Lake Michigan I saw several. In April 1914 I saw one at White Lake in Muskegon Co. a hundred miles north of here.—W. E. PRAEGER, *Kalamazoo, Michigan*.

**The Wisconsin Bird List.**—Since the publication in 1903 of Kumlien and Hollister's 'The Birds of Wisconsin' few changes have been made in the list of birds collected in the state. Hollister, discarded his record of the Longtailed Chickadee ('The Auk,' Vol. XXIX, page 397). Collection of the following species has been reported in 'The Auk' from time to time as cited; Gray Gyrfalcon (Snyder, Vol. XXII, page 413), Dovekie (Ward, Vol. XV, page 215), Acadian Flycatcher (Stoddard, Vol. XXXIV, page 66), Bell's Vireo (Betts, Vol. XXXI, page 542), Gyrfalcon (Stoddard, Vol. XL, page 325), Bewick's Wren (Taylor, Vol. XL, page 340) and Starling (Stoddard, Vol. XL, page 538). These additions give Wisconsin an authenticated list of 363 species.—GARDNER P. STICKNEY, *Milwaukee, Wis*

**Additional Records from the Madison, Wis., Region.—**

1. *Astur atricapillus atricapillus*. GOSHAWK.—One specimen observed January 24, 1923.

2. *Buteo borealis krideri*. KRIDER'S HAWK.—One individual, obligingly confiding, was studied for several minutes with 15 × binoculars on January 23, 1923. Fortunately it was in full adult plumage and admitted of no question. Another specimen, even more unsuspicious, was disturbed while hunting on the ground, three hundred feet within the borders of an oak grove with tangled underbrush on October 14, 1925. It flew to the lower branch of a thirty-foot tree and remained about half a minute in a crouching position. It was sensationally white against its dark background. Later I had three opportunities to study it with a 40 × telescope at close range. The crowns of both birds were pure white.

3. *Falco peregrinus anatum*. DUCK HAWK.—A pair of these Hawks have nested for the past five successive years on a difficult cliff ledge about 175 feet above the Wisconsin River, thirty miles north of Madison. Another pair has nested over 300 feet up on Gibraltar Rock, thirty miles to the north, by east, of Madison during three of those years.

4. *Passerherbulus lecontei*. LECONTE'S SPARROW.—Since I am more interested in the Sparrow family than in any other, I have spent untold hours in the favorite habitats of the rarer species. During only four of the



eleven years I have worked in the Madison territory have I encountered this bird and then only a single one in a season. I have seen none within the last three years. I rate it the most difficult of all the smaller avifauna, excepting the Black Rail, to study or collect during its spring migration.

5. *Passerherbulus nelsoni nelsoni*. NELSON'S SPARROW.—In 1923 this rare sparrow was not uncommon in the reedy marshes about Madison. On October 1, two were seen on the Hammersley Marsh, and from October 5 to 14 from two to six specimens were seen on the Wingra Marsh. Although careful search was made in the fall of 1924 and 1925, none of the species was seen. There are no spring records for our district.

6. *Zonotrichia querula*. HARRIS'S SPARROW.—One specimen observed October 3, 1923.

7. *Spizella pallida*. CLAY-COLORED SPARROW.—Four were observed, one of which was collected, on May 13, 1925. None of this species was discovered during 1923 or 1924.

8. *Cardinalis cardinalis cardinalis*. CARDINAL.—The status of the Cardinal has evidently changed considerably during the past two decades. The Wisconsin State List (1903) gives only four or five records. Today dozens of pairs can be heard whistling along the Wisconsin River bottoms, and every winter finds four or five birds perhaps wanderers from their summer habitat—in or about Madison. Early in June, 1925, Mr. John Main called my attention to a cardinal's nest in the heart of the city. The female was sitting on it when I saw it.

9. *Vermivora pinus*. BLUE-WINGED WARBLER.—The status of this Warbler north of the southern line of Wisconsin is of peculiar interest. In the Wisconsin State List (Kumlien and Hollister) only seven records are listed from 1867–1899, all save one—at La Crosse on the Mississippi—within thirty miles of the southern border. The bird is reported by Cory as a "casual summer resident in northern Illinois"; by Barrows of Michigan as "taken a dozen times within our limits"; and by Anderson in the Iowa 'State List' as having been reported only once in northern Iowa—at Decorah, thirty miles from the Mississippi. The situation in Minnesota, however, is different. And Minnesota is the farthest north of all the States to be considered. Dr. Hatch, who seems to have been exceptionally optimistic with many species, finds it not uncommon; and Dr. Roberts, a far more exacting ornithologist, includes it without comment among the regular summer residents. Dr. Chapman, in his 'Warblers,' tables the observations of six years on the species made at Lanesboro, thirty miles from the Mississippi (by Dr. Hvoslef?). From 1916 to 1922 I observed this Warbler five times near Madison which is forty miles from the central southern border of the state. But in the spring of 1923, with the discovery of the rich, avifaunal life in the river bottoms of the Wisconsin River, a fairly large tributary of the Mississippi, our local knowledge of the Blue-wing was increased. During that year three spring specimens were seen.

And during the spring of 1925, four of us, who worked the territory carefully, observed twenty-four individuals, several of them evidently nesting birds. On the 31st of May, for instance, fifteen were identified. It may be that the species is increasing its range; but I think it more probable that it has for years found a habitat to its liking in the river-bottoms of the Mississippi and Wisconsin rivers and adjacent territories where conditions parallel those of the upper-austral zone. So far as I can discover the early Wisconsin ornithologists knew nothing of the river-bottom territory. Had they worked the region, the presence of the Blue-winged and Kentucky Warblers, the Bewick's Wren, the Bell's Vireo, the Tufted Titmouse, and probably the Cardinal, would have been discovered sooner.

10. *Vermivora rubricapilla rubricapilla*. NASHVILLE WARBLER.—One late migrant observed November 1, 1925.

11. *Vermivora celata celata*. ORANGE-CROWNED WARBLER.—On December 9, 1925, I discovered an Orange-crowned associating with Chickadees near Madison. The bird seemed to be in excellent physical condition. On December 10th I visited the spot again and attempted to collect it, merely wounding it and losing it in a loose stone pile. Luckily it was a typical specimen, characteristic in color, with obvious dusky streaks on the breast.

12. *Dendroica cerulea*. CERULEAN WARBLER.—A relatively common nesting Warbler in the Wisconsin River bottoms.

13. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—A late migrant observed on November 1, 1925.

14. *Oporornis formosus*. KENTUCKY WARBLER.—The Wisconsin State List records but seven specimens of *formosus* between 1851 and 1903, the date of its publication. But the bird is not uncommon in the river-bottoms. On May 25, 1925, three were observed (one collected); on May 31, 4; and on June 28, 4. These were undoubtedly nesting birds, two having been seen with nesting material.

15. *Icteria virens virens*. YELLOW-BREADED CHAT.—One specimen, collected, on May 17, 1925; a second observed in the bottom-lands on May 31.

16. *Anthus rubescens*. AMERICAN PIPIT.—A flock of forty observed on October 3, 1923; four on October 15. Two were seen on May 25, 1925; six on October 12. On October 31, Mr. John Gundlach of Madison reported a flock of one hundred.

17. *Thyrothorus ludovicianus ludovicianus*. CAROLINA WREN.—One specimen observed in river-bottoms on September 17, 1923.

18. *Thryomanes bewicki bewicki*. BEWICK'S WREN.—One individual collected within a mile of Madison, April 30, 1923.

19. *Baeolophus bicolor*. TUFTED TITMOUSE.—One specimen observed January 11, 1923. While I was in the company of Mr. William Schorger of Madison on June 28, 1925, at a point near the Wisconsin River bottoms, a family of seven titmice, five immature, were discovered. This is probably

the first nesting record for the State. The 'State List' has this to say about the bird: "there is a single specimen of the Tufted Tit, shot by Mr. N. C. Gilbert, December 15, 1900, near Madison. The bird was alone, and this is doubtless the only record for the state." Mr. Schorger has other records, as have I. It is probable that the species is increasing its range.

—WARNER TAYLOR, 619 N. Frances St., Madison, Wisconsin.

## RECENT LITERATURE.

**Dr. Phillips' 'Natural History of the Ducks.'**—In a portly volume of nearly 500 pages, Dr. Phillips brings to a close his notable 'Natural History of the Ducks.'<sup>1</sup> This part (Vol. IV) concludes the Fuligulinae—the Scoters, Labrador Duck and Eiders, and covers the Ruddy Ducks, Torrent Ducks and Mergansers. Along with the Torrent Ducks are arranged two curious and isolated species, Salvadori's Duck from New Guinea and Waigiu and the Blue Duck from New Zealand, the former known only from a very few specimens and the latter threatened with extinction through its remarkable stupidity and the advance of settlements into its native haunts. With no anatomical studies of either species their actual relationship is still a matter of doubt.

Dr. Phillips regards all of the Scoters as congeneric and recognizes only three species *Oidemia americana* being considered a subspecies of *O. nigra* while our White-winged Scoter he places as a subspecies of *O. fusca*, of this species he also recognizes an Asiatic race *stejnegeri* and tentatively a western American form *dixonii*. Six races of the Eider Duck are recognized, both *dresseri* and *v-nigra* being looked upon as subspecies and other races are admitted for Norway, the Faroes and West Greenland. Three races of the Merganser are admitted from Europe, North America and Asia while besides the Red-breasted, there are three other distinct species the Chinese, Auckland and Brazilian Mergansers, all of them rare, and possibly nearly extinct.

In the "Addenda" there is added an account and plate of the beautiful Crested Shelldrake (*Pseudotadorna cristata*) described and named by Mr. Nagamichi Kuroda from recently killed specimens. This bird appeared in old Japanese pictures and was generally considered a myth or at least some sort of hybrid. In view of the recent capture of a pair and the lack of any indication of hybrid origin it is generally conceded to be a valid species, probably at the very end of its career and the last of the Anatidae to be recognized.

The present volume contains a colored frontispiece of flying Eiders by Benson, and 31 other plates, one by Fuertes, seven by Grönvöld, two by Kobayashi and 21 by Allan Brooks. Of this series 23 are in color. There are also 23 distributional maps and a most exhaustive bibliography covering 127 pages in double column. A page of errata and a comprehen-

<sup>1</sup> A Natural History of the Ducks. By John C. Phillips, Associate Curator of Birds, in the Museum of Comparative Zoology, at Harvard College, with Plates in Color, and in Black and White, from drawings by Frank W. Benson, Allan Brooks, Louis Agassiz Fuertes, Henrik Grönvöld and S. Kobayashi. Volume IV, Fuligulinae (concluded), Oxyurinae, Merganettinae and Merginae. [vignette.] Boston and New York, Houghton Mifflin Company, The Riverside Press Cambridge, 1926. pp. i-xi, +1-489, pls. 71-102, maps 96-118. price \$50.

sive index to the entire work close the volume which is the finest of the series and a fitting close to a great undertaking. Dr. Phillips has issued a limited number of copies of the bibliography separately bound.

From the time of Catesby and Edwards large illustrated works on birds have formed a conspicuous part of ornithological literature, often faunal in character, they, later, in the folio volumes of Gould and Elliot, took the form of monographs of families. With the more detailed studies of recent years where diagrams of characters are, from the purely technical standpoint, more important than colored plates, it would be supposed that such works might cease to be published, but it is most gratifying to find that the traditions of our science have not been entirely lost and that it is still possible, through the energy and support of lovers of fine books to produce such works, especially since the talents of both artists and field naturalists make the work of the present day superior in many respects to the classics of the past.

Quarto rather than folio size seems better for many reasons and gives the artist just as great opportunities as did the life size efforts of days gone by while the character of the text has greatly improved.

Dr. Phillips' book stands in the front rank of these modern illustrated monographs and he is to be heartily congratulated upon the completion of his task in bringing out this 'Natural History of the Ducks.' He has not only given us some of the best work of the recent bird artists but has written a text that demands our admiration for the exhaustive research involved in its preparation and the broad knowledge of the subject that he has displayed.—W. S.

**Wetmore on the Birds of Argentina.**<sup>1</sup>—As many of our readers are aware, Dr. Alexander Wetmore spent practically a year (June 21, 1920—April 29, 1921) investigating the bird life of Argentina and the adjoining countries, especially the status of the migrant shore birds, in the interests of the U. S. Department of Agriculture with which he was then connected. The present volume is the completed report of his experiences and the collection which he procured.

Those familiar with the thoroughness of Dr. Wetmore's work will be prepared for the admirable report which he has presented and which forms one of the most important contributions to Argentina ornithology that has yet appeared.

His narrative is interesting reading, describing the general character of the country through which he travelled, including several excursions in various directions from Buenos Ayres as a center; a survey of Uruguay; long trips up the Uruguay and Parana Rivers, the latter terminating in the interior Chaco northwest of Asuncion; and another trip to Tucuman and

<sup>1</sup> Observations on the Birds of Argentina, Paraguay, Uruguay, and Chile. By Alexander Wetmore, Assistant Secretary, Smithsonian Institution. U. S. National Museum Bulletin 133, pp. i-iv, +1-448. pls. 1-20. Washington, 1926. Government Printing Office, 65 cents per copy.



Tapia. A series of excellent half-tone illustrations from photographs add greatly to these accounts of the country.

The author then gives with some hesitation his idea of the life zones of the countries he traversed which from the nature of the case must be regarded as tentative. He considers Puerto Pinasco, and the Chaco behind it, as within the southern limit of the Tropical Zone, though apparently not typical of it. Most of eastern and northern Argentina south to the valley of the Rio Negro, most of Uruguay and part of Paraguay constitute an area of moderate climate "where frost may occur regularly but snow only casually" and this is termed the Lower Austral. The country south of the Rio Negro Valley where conditions are more severe and "snow and ice are regular features of the prolonged winter" is termed the Upper Austral. The Temperate Zone lies still farther south and was beyond the limits of Dr. Wetmore's travels.

The bulk of the report consists of the annotated list of birds but the annotations are so extensive that they are often important contributions to the life histories of the species. There is usually a brief description of the specimens secured and comparison with related forms, then follows the author's experience with the species during his travels, while sometimes there are valuable notes on anatomical characters, either specific or generic. Notable among these is the fact that the bill tip of the Baird's Sandpiper is narrow and devoid of pits which peculiarity forms an excellent character by which to distinguish it from either the White-rumped or Pectoral in which the tip is broader and pitted. In the case of the Turkey Vultures, the South American races of which have always been in more or less confusion, Dr. Wetmore has presented a synopsis based upon his study of this interesting if unsavory group. The yellow-headed bird is shown to be *C. urubitinga*, while five races of *C. aura* are recognized, *aura* from Mexico and the West Indies, *septentrionalis* from the United States, *ruficollis* from eastern and southern South America (= *per-nigra*), *jota* from Chile along the Andes to Colombia (= *meridionalis* Swann), and *falklandica* from the Falkland Islands and southern Chile.

The races of *Myospiza humeralis* and *Belanopterus chilensis* are also reviewed. With regard to our wintering shorebirds Dr. Wetmore found that the Field Plover (*Bartramia*) was now a rare bird although it formerly occurred in vast numbers and was a regular item of the bills of fare at all the leading hotels and restaurants. Similarly the Hudsonian Godwit which fifty years ago occurred in great bands is now seen only in small numbers while the Eskimo Curlew, another famous game bird of Argentina, is gone forever. Both species of Yellow-legs, the Pectoral Sandpiper and the Golden Plover still occur in more or less abundance and are regularly shot on their spring migration northward. Of the smaller species the White-rumped Sandpiper was very plentiful and as many as 2000 could be recorded in a day. Other species which reach this far south on their flights are the Western Solitary, Spotted, Baird's,



Stilt and Buff-breasted Sandpipers and Sanderling, although of some only a very few were seen, the majority stopping farther north. Apparently the only land bird migrating as far as Argentina is the Bobolink which is in much favor as a cage bird.

Dr. Wetmore's attitude on genera will be regarded with interest as he has anatomical reasons for all of his actions. He fails to distinguish generic characters for the two species of Yellow-legs or for separating some of the Godwits as *Vetola*. His classification moreover is original and will be found to conform pretty closely with that which he and Mr. Miller have prepared for the new A. O. U. 'Check-List' (see antea p. 337).

To those familiar with the bird life of Argentina through the works of Hudson, Dr. Wetmore's account of its present status will be most interesting, while to all of us the description of the birds of a foreign country, by one who goes out from our own country, is always interesting and satisfactory, as his impressions and reactions are in all probability those that we ourselves would experience. Dr. Wetmore is to be congratulated upon another important contribution to ornithology.—W. S.

**Shelford's 'Naturalist's Guide to the Americas.'**<sup>1</sup>—Botanists and zoologists have long since ceased to be content with the making of collections and the purely systematic study of a fauna or flora, and today a floral or faunal report must needs consider the region in its relation to other regions and its reference to definite zones or to special climatic or ecologic subdivisions. For information as to the physiography or climate of a region in any state or province of North or Middle America, or the make up of its wild life one hardly knew where to turn.

In order to meet this need there has recently been prepared by a committee of the Ecological Society of America, under the editorship of Dr. V. E. Shelford, a 'Naturalist's Guide to the Americas.' The other members of the committee and the numerous aids and contributors make up such an array of talent as could not help but bring together a vast amount of valuable and instructive data which together with the numerous lists of reference works should put the reader in touch with much of the information he desires concerning any region between the American Arctic Archipelago and the Amazon Valley.

Naturally with such a host of contributors specializing in various branches and with varying amounts of personal experience in the regions of which they write, the treatment must be decidedly uneven. Some sketches like that of Mexico, by Nelson and Goldman, are admirable but others are extremely weak and one-sided, while in some cases, as the Bahamas, there is no account at all. After studying a number of the sketches we are impressed with the fact that botany has been exploited in most cases at the expense of zoology, indeed some of the authors seem absolutely unacquainted with the zoology of their regions and have resorted to compilations or omitted the subject almost entirely. It seems a pity, considering the amount of labor expended on the work, that the

several accounts could not have been arranged upon a common plan and the missing information supplied from standard works or by other specialists able to furnish it.

Considering the ornithology of several states with which the writer is somewhat familiar, we find in New Jersey that the "common birds" of the northwestern mountain section were the "Passenger pigeon, quail, partridge, wild turkey and egret"—surely a sad selection. Further on we are informed that some of these are extinct and to this class is added a bird called the "water hen" the identity of which we are at a loss to surmise. Of the low ground area to the southeast no birds whatever are given. And yet there is a work on the birds of the state, not cited in the list of reference works, in which the characteristic birds of the several zones of the state are listed. The mammals of northern New Jersey are also listed but that is all of the zoology except "that the Spadefoot Toad is common in this area"! In the South Carolina sketch the only bird mentioned is the Ruffed Grouse which is said to be abundant throughout the State except near the large cities, a statement which is wholly erroneous since it occurs only in the limited mountain region and is apparently rare even there. Again we find the Wilson's Warbler and Mountain Vireo given as breeding birds in the higher mountains of Maryland whereas the former does not breed south of Maine and New Hampshire while the Vireos are really referable to the Solitary Vireo. We are curious too to know how *Pinus banksiana* came to be listed as a characteristic tree of this region. The technical nomenclature has been revised according to standard authorities and made uniform, but curiously enough while in some cases whole pages are devoted to lists of scientific names, in others only vernacular names are used.

We fully realize the difficulty of gathering information on such a wide scope but it seems hopeless to expect a botanist to present an accurate summary of the zoology of a region or vice versa. The general accounts of the physiography of the various states and countries and the data on parks and reservations will be of the greatest value and will make the book an important work of reference and the detailed information on the flora appears in the main accurate; the zoological portion, however, in many of the reports is unfortunate and cannot, we regret to say, be taken as authoritative except where a well known zoologist appears as the author.—W. S.

---

<sup>1</sup> Naturalist's Guide to the Americas. Prepared by the Committee on the Preservation of Natural Conditions of the Ecological Society of America, with assistance from numerous organizations and individuals. Assembled and edited by the chairman Victor E. Shelford. Publication Editor, Forrest Shreve, Associates and Special Editors, E. Lucy Braun, Lee R. Dice, Lynds Jones, Clarence F. Korstian, Robert B. Miller, Helen T. Galge and Frank C. Baker. Baltimore, The Williams and Wilkins Company, 1926. pp. i-xv + 1-761. Numerous maps and plate. Price, \$10.00.

**Thomson's 'Problems of Bird Migration.'**<sup>1</sup>—Some three years ago we had the pleasure of noticing a work on 'The Biology of Birds' by Prof. J. Arthur Thomson, in which the general facts and problems of ornithology were discussed, not by an ornithologist, but by a general zoologist. Now we have before us a work on 'The Problems of Bird Migration' by his son, Dr. A. Landsborough Thomson, in which this important phase of bird study is presented by one who is primarily a student of animal behavior.

Such authors are free from the traditions and prejudices of the ornithologist *sensu strictu* and can bring to bear upon their subject data and theories derived from the broader field of zoology with results and viewpoints that the ornithologist can well study with profit. The present author has undoubtedly prepared himself well for his task, and the bibliographies appearing at the end of each chapter contain the vast majority of publications dealing with migration. These form the basis of the first two parts of the work which consist of an admirably prepared summary of the principal known facts regarding bird migration (Part I) and special studies of bird migration with particular reference to bird marking (Part II). These are prefaced by an introduction on migratory movements in the animal kingdom in which bird migration is seen in its true perspective.

Part II will be of great interest and value to bird banders in this country, with its account of methods, its numerous maps, and its detailed discussion of data relative to the banding and movements of the Swallow, White Stork, Lapwing, Starling, Ducks and Gulls. Part I will form a working foundation for any investigation of bird migration no matter what the standpoint of the investigator may be, and presents the known facts in a clear and comprehensive way.

It is to Part III, however, "the main problems of bird migration," that we turn with the greatest avidity, but here it should be explained that the author is careful to state that his work "aims at a statement of the problems presented by the phenomenon of bird migration rather than at an attempt, *hopeless in the present state of knowledge*, at their solution" [italics ours].

Dr. Thomson considers that the problems presented by the migration of birds are four in number.

1. Its *raison d'être* which he answers with a definiteness that seems entirely warranted: "It enables the migrants to inhabit two different areas at the respective seasons most favorable in each." "Migration," he adds, "is an expensive custom involving great expenditure of energy and heavy loss of life and if the results were not highly beneficial the habit would surely have ceased to exist."

2. What originally developed the custom of migration? Here we are told only speculation is possible. The most general theory has been that a suitable breeding area and satisfactory winter feeding ground were

---

<sup>1</sup> Problems of Bird Migration. By A. Landsborough Thomson, O.B.E., M.A., D.Sc. (Aberdeen). H. F. & G. Witherby, 326 High Holborn, W.C. 1. [London]. 1926. pp. i-xvi, 1-350. Price 18s. net.

originally coincident, and through changed conditions have diverged, forcing migration from one to the other. The climatic changes of the glacial epochs and the extension of range of species have been suggested as primary influences to this end, while the suggestion has also been made that migration may have arisen suddenly from abrupt movements such as still occur in certain species today. All of these theories are, however, in Dr. Thomson's opinion, beset with difficulties and they do not explain the nature of the inborn custom nor the manner of its inheritance.

3. What is the stimulus that puts migration in action at the proper time twice a year? This necessary stimulus has been sought in physiological changes connected with the recurrence of the reproductive season and also in external climatic conditions. Our author suggests that both may be operative, the former predominating in spring and the latter in autumn although climatic changes may again and again stimulate migration after a physiological stimulus has produced the necessary condition of unrest, thus causing the successive advances in spring.

4. The last problem is the *modus operandi* of the actual migratory performance; what determines the routes and how do the birds follow them? Dr. Thomson thinks that there must be some inherited memory of path and goal and contends that the knowledge cannot be traditional since young birds migrate for the first time unguided. Vision he regards as an important point although he admits it may seem inadequate in over-sea paths, and we surely think it is. He considers that the term a "special sense of direction" is devoid of exact meaning, which is very true except it denote a faculty that wild animals have that we cannot yet describe in terms of the known senses. He moreover feels that the homing of pigeons and other birds removed to distant points artificially "is not strictly analogous to migration but raises some points of difficulty."

We may not agree with his estimates of some of the theories that have been advanced but here again we must point out that he is merely weighing them in accordance with their value in the study of behavior and giving us what he regards as a working hypothesis for future studies.

When we read his admirable work we realize the complexity of the subject and the amount of knowledge that we should possess of the work of our predecessors before we are justified in entering upon the field of speculation and theory. If bird banders hope to advance beyond the stage of putting bands on birds' legs, or recorders of bird arrivals wish to understand the significance of what they are doing, they should read this book and gain some clear idea of the magnitude of the problem they are attacking.—W.S.

**Hellmann on 'The Origin of Birds.'**—This important work<sup>1</sup> consists of a compilation of all the data so far presented bearing upon the ancestry

<sup>1</sup> The Origin of Birds. By Gerhard Hellmann. With two plates in colour and one hundred and forty photographs and text-figures from drawings by the author. London, H. F. & G. Witherby, 326 High Holborn, W. C. 1926. pp. 1-208. Price 20s. net.

of birds with much discussion of their reptilian relationships, and the author's conclusions on the subject. His researches have been exhaustive and his success in digesting and presenting in readable form a resumé of such varied publications is remarkable, especially when we realize that Dr. Heilmann is a Dane writing his treatise in English.

He divides his work into four parts: In Part I he considers "Some Fossil Birds," first *Archaeornis* and *Archaeopteryx* and then *Ichthyornis* and *Hesperornis*. He has studied exhaustively the specimen of *Archaeornis* in the Berlin Museum and given us a colored restoration of it as a frontispiece to his book as well as one of the Loon-like *Hesperornis*, and his graphic pen pictures of the life of these birds respectively in the tree fern forests of the Jurassic and in the Cretaceous seas, and their conflicts with their reptilian contemporaries is vivid indeed. He also by means of numerous original drawings and photographs shows us the close correspondence in the skeletal structures of reptiles and birds. Part II discusses the embryonic stages of birds and reptiles and sketches the development of the skeleton in the two groups.

Part III consists of "Some Anatomical and Biological Data" in which are considered the supra-temporal fenestra, digital claws, cerebrum and cerebellum, organs of sense, sexual organs and secondary sexual characters in birds and reptiles.

Taken together the data presented in these three parts serve to demonstrate the close relationship between birds and reptiles and the certainty of their common ancestry, preparing us for Part IV in which Dr. Heilmann seeks for the group of reptiles from which the birds probably sprung, i.e., the "Proavian." This he considers is found in the *Pseudosuchia* a group of fossil reptiles less specialized than the Dinosaurs. Some of these had evidently developed into terrestrial runners with the fore part of the body elevated from the ground and from these arose arboreal climbers from which was evolved the *Archaeornis* and eventually the modern birds.

The resemblances of the Pterodactyls to birds he considers merely superficial and the claims advanced for *Iguanodon* and certain other types as the direct avian ancestor are disposed of. The many sketches of restorations give the reader a much clearer idea of these various early types than is possible in a description, and for those who wish to follow the subject further the excellent bibliographies, often accompanied by synopses, are a great help.

Dr. Heilmann is to be congratulated upon producing a book at once interesting to the scientific investigator and yet understandable by the layman desirous of getting some knowledge of this interesting problem.  
—W. S.

**Wetmore on Patagonian Birds.**—While engaged in working up his collection from Argentina and the adjoining countries Dr. Wetmore worked up a collection of Patagonian birds obtained by Mr. J. R. Pemberton, while engaged in geological work from 1911 to 1915, and presented to the Museum



of Vertebrate Zoology of the University of California. This collection numbering 349 skins represented no less than 150 species and subspecies some of which have been described as new by Dr. Wetmore in earlier papers. The present report<sup>1</sup> contains a descriptive list of localities in the reparation of which Mr. Pemberton gave his assistance and a number of illustrations of the scenery, and following this an annotated list of the species with detailed discussion of the specimens and numerous notes on relationship and nomenclature. There are illustrations in half-tone from paintings by Louis Agassiz Fuertes, of three birds characteristic of the region—the Bronze-winged Duck, White-throated Caracara and Patagonian Flicker. Dr. Wetmore has performed an excellent service in working up this rich collection from a region only too little known ornithologically.—W. S.

**Hartert on the Birds of Feni and Nissan Islands.**<sup>2</sup>—Apparently no collections of birds have heretofore been made on these islands situated east of south New Ireland, so that the collections here reported upon and made by A. F. Eichorn, for the Tring Museum, are of much interest. Dr. Hartert finds the avifauna of the former island related to that of New Ireland with some Solomon Islands influx, while that of the latter is entirely related to that of the Solomons. Thirty-seven species are listed from Feni and twenty-three from Nissan; *Accipiter eichorni* (p. 36) and races of *Monarcha cinerascens* and *Cinnyris sericeus* are described from the former and a new form of *Ptilinopus solomonensis* from the latter while incidentally a race of *Accipiter eichorni* is described from Choiseul Island. The question is raised in this paper whether the name *Lorius cardinalis* Gray, 849—an *Eos* is preoccupied by the combination *Lorius cardinalis* (Bodd) previously mentioned by Gray but originally described as *Psittacus cardinalis*. Such names were considered in the Revised Code of the A. O. U. and it was ruled that a mere combination such as this did not affect a newly proposed name or identical form unless both species belong to the same genus.—W. S.

**Grinnell and Swarth on the Pacific Brown Towhees.**<sup>3</sup>—In the light of more adequate series of specimens the authors find that *Pipilo fuscus senicula* does not range north of Lower California, the birds from the boundary north to Monterey being referable to *P. f. crissalis* while those from Monterey northward belong to a different race, which they describe as *P. f. petulans* (p. 430). The interior valley form is *P. f. carolae* but the birds from the valleys of Josephine and Jackson Counties, Oregon, again represent an undescribed race which is here named *P. f. bul-*

<sup>1</sup> Report on a Collection of Birds made by J. R. Pemberton in Patagonia. By Alexander Wetmore. Univ. of Calif. Publ. in Zoology, Vol. 24, No. 4, pp. 395-474, pls. 12-14, 11 figs. in text. Berkeley, Calif. 1926.

<sup>2</sup> On the Birds of Feni and Nissan Islands, east of South New Ireland. By Ernst Hartert. Novit. Zool., XXXIII, pp. 33-48. March 1926.

<sup>3</sup> Systematic Review of the Pacific Coast Brown Towhees. By Joseph Grinnell and Harry S. Swarth. Univ. of Calif. Publications in Zool., Vol. 21, No. 18, pp. 427-433. Berkeley, Calif. 1926.



*latus* (p. 431). These together with the three Lower California forms, *senicula*, *aripolius* and *albigula*, give us seven races of *P. fuscus* from California and Lower California.—W. S.

In another paper<sup>1</sup> Dr. Grinnell describes a new White-breasted Nuthatch, *Sitta carolinensis alexandrae* (p. 405), from the San Pedro Martir region of Lower California.—W. S.

**Laing on Birds of the North Pacific.**—This paper<sup>2</sup> consists of a list of the birds observed and collected on the cruise of H. M. C. S. *Thiepsval* along the coasts of the north Pacific, in 1924, from Vancouver to Bering Island and along the Asiatic coast to Japan. One hundred and twenty-five species are mentioned with critical notes by P. A. Taverner.—W. S.

**Sushkin on Birds of the Russian Altai and N. W. Mongolia.**—The main part of this paper<sup>3</sup> consists of tables showing the distribution of 371 species and subspecies of birds in 22 regions which are represented in vertical columns while the bird names run horizontally. There are also descriptions of twenty-two new forms including a new race of the Herring Gull and one of the Common Tern.

While the text is mainly in Russian the names of the localities in the table are repeated in English and the same thing is done in the case of the diagnoses of new forms. The paper forms a valuable contribution to the ornithology of a little known region.—W. S.

**Mathews 'The Birds of Australia.'**—Part 6, of Vol. XII,<sup>4</sup> completes the accounts of the Weaver Finches and begins those of the Orioles. The species here treated are some of the most brilliantly colored of the Australian birds, including the Gouldian, Crimson and Red-faced Finches.—W. S.

**Wetmore on Fossil Birds from Nebraska.**—Several years ago Dr. Wetmore published an account of some fossil birds obtained by the American Museum of Natural History in the Snake Creek quarries of Nebraska and in the present paper<sup>5</sup> he considers some additional material obtained in 1923. These comprise the metatarsus of a Courlan upon

<sup>1</sup> A New Race of the White-breasted Nuthatch from Lower California. By Joseph Grinnell. Univ. of Calif. Publications in Zool., Vol. 21, No. 15, pp. 405-410. 1926.

<sup>2</sup> Birds Collected and Observed during the Cruise of the *Thiepsval* in the North Pacific, 1924. By Hamilton M. Laing. Museum Bull. No. 40, Victoria Memorial Museum, November, 1925. Price 15cts.

<sup>3</sup> List and distribution of Birds of the Russian Altai and nearest parts of N. W. Mongolia with a Description of New or Imperfectly Known Forms. By Peter P. Sushkin.

<sup>4</sup> The Birds of Australia. By Gregory M. Mathews. Vol. XII, Part 6, pp. 225-264, pls. 717-723. March 24, 1926.

<sup>5</sup> Descriptions of Additional Fossil Birds from the Miocene of Nebraska. By Alexander Wetmore. Amer. Museum Novitates. No. 211, March 11, 1926. Pp. 1-5.

which is established a new genus and species, *Aramornis longurio* (p. 1); and the humerus of a parrot described as *Conuropsis fratercula* (p. 3), evidently closely related to the Carolina Parakeet. No fossils of either of the families Aramidæ or Psittacidae have hitherto been found in North America which adds materially to the interest attaching to these specimens.—W. S.

**Dr. Fisher's Bibliography.**—In connection with Dr. A. K. Fisher's seventieth birthday, which fell upon March 21, 1926, Dr. T. S. Palmer and Mr. W. L. McAtee have prepared an exhaustive bibliography<sup>1</sup> of his published papers, which number exactly 150 items, mainly dealing with birds and mammals, and running from 1875 to 1926. The date of publication was very fittingly that of his birthday and the first copies were distributed at the anniversary gathering held at Plummer Island.—W. S.

**Kuroda's Monograph of the Pheasants of Japan.**—This handsomely gotten up work<sup>2</sup> treats of the twelve or more Pheasants found in Japan, Korea and Formosa. Under each species are descriptions in great detail of many specimens illustrating racial and individual variation, while the range of each form is worked out with the greatest care and a bibliography of seventy-two titles completes the valuable text. Of the plates three are from photographs while twelve are from paintings by Messrs. Yokoyama and Kobayashi and are excellently reproduced in colors. Several of them represent the central tail feathers of the closely related races worked out in great detail, while others depict some of the hybrids bred from the Japanese species. Mr. Kuroda recognizes four subspecies of *Phasianus versicolor*, two of *P. colchicus* and five of *P. soemmerringii*, for which he adopts the distinct generic name *Graphophasianus* of Hachisuka. Finally there is the Mikado Pheasant (*Cyanophasis mikado*) of which our author has studied six specimens in his collection from the mountains of Formosa and three living examples in his aviary, together with skins of nine downy young which were hatched there and died. A list of 166 specimens, captured alive or killed, is added, which Mr. Kuroda thinks comprises all specimens so far as known of this rare bird. The work is entirely in English and was printed in Tokyo. It forms a most important contribution to our knowledge of this interesting group of birds.—W. S.

**Bird distributors on Mistletoe in Europe.**—In a very complete monograph<sup>3</sup> of the common European mistletoe (*Viscum album*), Dr. Karl von Tubeuf devotes 35 pages (608–643) to discussion of the role of birds

<sup>1</sup> A List of the Publications of Albert Kenrick Fisher. By T. S. Palmer and W. L. McAtee. Proc. Biol. Soc., Washington, Vol. 39, pp. 21–28. March 21, 1926.

<sup>2</sup> A Monograph of the Pheasants of Japan including Korea and Formosa. By Nagamichi Kuroda, Rigakuhakushi, with twelve colored and three uncoloured plates. Published by the Author Tokyo. [February 11], 1926, pp. 1–43.

<sup>3</sup> Monographie der Mistel, 1923, 832 pp., 35 pls., 181 figs., 5 maps.

as disseminators of the plant. The Missel Thrush, named from its association with the plant, is the most important bird vector of the mistletoe, and five other species of the genus *Turdus* and the Bohemian Waxwing are ranked next. Von Tubeuf lists only 22 species of birds as proved disseminators of the plant and notes that numerous records in ornithological literature require verification. Some connection is traced between lines of flight of Thrushes and the distribution of mistletoe in Germany. Birds which devour mistletoe seeds for their own sake, digesting and thus destroying them are separately treated. They include the Titmice, Creepers, and Nuthatches. Slightly over four pages (49-53) are devoted to the use of mistletoe in making bird lime and in several places in the book reference is made to a saying traceable to Plautus, to the effect that the Thrush propagates a plant which (as birdlime) later brings it harm.—W. L. M.

**Birds feeding on the European Corn Borer.**—In a recent paper<sup>1</sup> George W. Barber notes that birds feed on adults of this pest, though to an as yet unknown extent; under certain conditions birds take the larvae from the growing plant, most notably so the Red-wing Blackbird; and they sometimes reduce by large percentages the numbers of overwintering larvae, the Downy Woodpecker being most active in this respect (pp. 153-154). Birds are now one of the valuable checks upon the numbers of the corn borer and Mr. Barber says, "there is reason to believe that they may become increasingly important in the natural control of this insect."—W. L. M.

**An Investigation of the Food of Terns in England.**—More or less parallel increase in a colony of Terns at Blakeney Point, Norfolk, and decrease in fishes, especially commercial flat fishes, persuaded the fishermen that they stood in the relation of cause and effect. In response to complaints an investigation was carried on during the breeding season of 1925, and the stomach contents of 55 Terns of three species collected during the period were examined by Dr. W. E. Collinge. His report with appendices from the Committee in Charge and by an *amicus curiae*, Mr. J. W. Allen has recently been published. Dr. Collinge<sup>2</sup> found no flat fishes whatever in any of the stomachs examined, so inevitably concludes that the Terns have nothing to do with the decrease in the commercial catch of such fishes. Marketable fishes composed about a fifth of the food of the three species of Terns, fishes locally consumed, a sixth, crustaceans and worms a little more than half, and insects and miscellaneous animal food the remainder. Interesting data on other phases of the life history of

<sup>1</sup> Some Factors Responsible for the Decrease of the European Corn Borer in New England during 1923 and 1924. *Ecology*, Vol. VII, No. 2, April 1926, pp. 143-162.

<sup>2</sup> *Trans. Norfolk and Norwich Nat. Soc.*, Vol. 12, Part 1, 1924-25 [1926], pp. 35-53, 3 pls.

Terns than the gastronomic, are also, included in the paper. Dr. Collinge's summary is:

"It seems clear that any shortage of inshore fishes at Blakeney Point can hardly be accounted for by the presence and preservation of Terns.

"If the absence of inshore fish were due to the Terns, then we should also have a scarcity of sand-eels, various crustacea, annelids, and marine molluscs, whose percentage far surpasses that of the food fishes eaten, but there are no such signs.

"We are, therefore, thoroughly convinced that the recent scarcity of flat fish at Blakeney Point is due to some other factor, and feel certain that if the whole of the Tern population of Blakeney Point were to migrate elsewhere, the result would not be marked by any increase in the fisheries.

"To those acquainted with fishery investigations, these migrations or diminutions are nothing new, and their cause or causes still remain unsolved, but of one thing we are quite certain, viz., that the feeding habits of Terns or any other sea-birds bear no relation to them."—W. L. M.

#### **Economic Ornithology in Recent Entomological Publications.—**

Information on the bird enemies of certain insects has appeared in various recent entomological publications which are briefly reviewed in the sub-joined paragraphs.

Grasshoppers.—These insects do great damage on range and dry farming lands. Among their natural enemies "American sparrow-hawks, crows, blackbirds, meadow larks, and Columbia sharp-tailed grouse (prairie chickens) are of some value on the cattle ranges of British Columbia. In many cases these birds, feeding on mice, beetles, and other forms of life, make grasshoppers only incidentally their diet. Nevertheless they are valuable allies when grasshoppers are in an outbreak form."<sup>1</sup>

Japanese beetle (*Popillia japonica*).—This introduced beetle is a destructive pest of fruit, shade, and ornamental trees in New Jersey and Pennsylvania. Among the natural enemies of the insect, says C. H. Hadley in a paper on "The Japanese Beetle in Pennsylvania," "birds are without question of considerable importance. It has been found that a number of our commoner birds do feed upon this insect, notably the Purple Grackle or Crow-blackbird (*Quiscalus quiscula*), and the Starling (*Sturnus vulgaris*). Most of our other commoner species feed more or less upon this insect, and all are of considerable value in the aggregate."<sup>2</sup>

In another paper<sup>3</sup> on this insect published by the Federal Department of Agriculture the same author in collaboration with Loren B. Smith, states that "Among the natural enemies of the Japanese Beetle which are native to the United States, the birds are apparently the most important." These authors quote fully (pp. 41-43) from reports on two investigations

<sup>1</sup> Treherne, R. C. and Buckell, E. R., The Grasshoppers of British Columbia. Bull. 39, Dominion of Canada Dept. Agr., Oct. 1924, p. 33.

<sup>2</sup> Bull. Penn. Dept. Agr., Vol. 7, No. 11, June 1924, p. 16.

<sup>3</sup> Circ. 363, U. S. Dept. Agr., March 1926, p. 41.

by the Biological Survey which disclosed that at least 16 species of birds prey upon the pest. Messrs. Smith and Hadley note an interesting attempt to utilize a bird enemy of the Japanese Beetle in the following paragraph.

"Pheasants are known for their fondness for beetles of all kinds. A pair of English Pheasants (*Phasianus colchicus*) furnished by the New Jersey State Fish and Game Commission showed a great liking for both live and dried Japanese beetles. An attempt has been made to colonize these birds in the infested area, and to this end the New Jersey Legislature has passed a law prohibiting the killing of Pheasants in certain designated areas for a period of five years, and the Burlington County Game Protective League has distributed pairs in a number of places in the beetle-infested region."

Green June beetle.—In a paper entitled "Notes on the Behavior of *Cotinis nitida* L. and its Bird Enemies,"<sup>1</sup> Dr. F. H. Chittenden publishes observations on Starlings feeding on the larvae and Cardinals on the adults of this beetle. In addition to these birds, the reviewer gleans from various sources the names of 22 other species that are known to prey upon this lawn and fruit tree pest.

A somewhat speculative matter in Dr. Chittenden's paper is of sufficient interest to quote. "There is evidence of an unusual attraction of the green June beetle to the Cardinal and *vice versa*. When a bird alights among a lot of them where they congregate in bright sunlight and begins pecking at them, some fly directly at the bird as though in actual combat, giving the impression that the bird, because of its bright color, attracts the beetle. It was surmised at the time that the insect might mistake the bird for a flower. That this surmise may be correct is borne out by the observation of Dr. T. E. Snyder at Norfolk, Va., in July, 1925, that the beetles are strongly attracted to red varieties of Canna."

Striped cucumber beetle (*Diabrotica vittata*).—Messrs. J. S. Houser and W. V. Balduf state<sup>2</sup> that "the cucumber beetle occurs in practically all States of the Union, and everywhere its destructiveness has been keenly felt," but despite investigation and experimentation, "the injuries committed have continued little checked by the remedies evolved." A list of 15 species of birds known to prey upon the insect is given (p. 305) and the statement made that "it may be wondered how this insect is able to propagate itself and constitute so serious a pest in the face of its many enemies." To the list of bird enemies of *Diabrotica vittata* given by these authors may be added the Red-eyed and Philadelphia Vireos.

Cattle Grubs (*Hypoderma*).—"The cattle grubs are among the most widespread and injurious insects with which our livestock are beset," and while their life history is such that birds have few opportunities to feed upon them, yet the authors of an important bulletin about them are able

<sup>1</sup> Proc. Biol. Soc. Wash., Vol. 39, pp. 15-17, Feb. 1926.

<sup>2</sup> Bul. 388, Ohio Agr. Exp. Sta., Nov. 1925, p. 241.



to present some evidence that they do have bird enemies. They say: "Birds undoubtedly destroy many larvae as they drop to the ground after emerging from the backs of cattle. The pupae also are subject to attack, since they often remain exposed on the surface of the soil or only slightly covered. Several instances were observed in New York in which Robins (*Planesticus migratorius*) devoured larvae of *H. bovis* with avidity. . . . Henry Polson of Mountain View, Wyo., makes the following statement: 'Sometimes Magpies pick holes in the backs of the cattle, trying to get the grubs out, causing sores.' " The latter statement, while not given full credit by these authors, is corroborated by other observers. The Biological Survey has found larvae or pupae of flies of the family (Oestridae) to which the cattle grubs belong in stomachs of the Ring-necked Duck, Red-tailed Hawk, Great Horned Owl, and Crow.

Cankerworms (*Alsophila pometaria* and *Paleacrita vernata*).—These pests of fruit trees have made themselves very unfavorably known to our horticulturists since colonial times, and to this day sporadically develop destructive outbreaks. "One outstanding feature of cankerworm history is the recurrence of extremes of abundance and scarcity. In many cases the periods of extreme abundance have been suddenly terminated by an almost total disappearance of the worms, followed by a period of comparative freedom from attack." These phenomena are due to the great effectiveness of natural control among the factors of which birds are prominent. The authors of a federal bulletin summarizing information about cankerworms state that "Practically all of our common birds have been recorded at one time or another as cankerworm feeders," and that "Birds seem to be among the most important of the enemies of cankerworms." <sup>2</sup> Seventy-six species of birds are on the list of cankerworm predators according to information in the files of the Biological Survey.

Cabbage Worm (*Pieris rapae*).—In the latest Farmers' Bulletin on this well known pest, bird enemies are given due mention. The author, Dr. F. H. Chittenden writes: <sup>3</sup> "Birds which are known to feed upon cabbage worms are the Chipping Sparrow, English Sparrow, and House Wren. It is certain, however, that other birds eat them, and in one case it was reported that during the winter the number of chrysalids (resting stage) of the cabbage butterfly were reduced more than 90 per cent by birds." —W. L. M.

#### The Ornithological Journals.

**Bird-Lore.** XXVIII, No. 2. March-April, 1926.

Feathered Fisherman. By W. H. Gratwick, Jr.—Kingfisher studies with photographs.

<sup>1</sup> Bishopp, F. C., Laake, E. W., Brundrett, H. M., and Wells, R. W. Bull. 1369, U. S. Dept. Agr., April 1926, p. 80.

<sup>2</sup> Porter, B. A., and Alden, C. H., Bull. 1238, U. S. Dept. Agr., Oct. 1924, pp. 29, 30.

<sup>3</sup> Farmers' Bull. 1461, U. S. Dept. Agr., May 1926, p. 6.



Attracting Birds in the Southeastern States. By A. L. Pickens.

A Closeup of the Water Ouzel. By Helen T. Bush.

Crows is Crows. By F. L. Warne.—An excellent appreciation of the Crow and an account of a tame one. The author's statement that "practically every inhabited land has a black-feathered creature of the Crow genus" needs a slight modification as there are no Crows in South America.

The migration and plumage articles treat of the Chuck-will's-widow and Whip-poor-will with a colored plate by Fuertes.

In the "Notes from Field and Study" the record of the Blue Grosbeak from Michigan seems, from the evidence given, extremely doubtful instead of "without doubt."

**Bird-Lore.** XXVIII, No. 3. May-June, 1926.

A Turkey Vulture's Nest in the state of New York. By Paul G. Howes.  
—At Lewisboro on the Mill River near the Connecticut line.

Judgment on the House Wren. By W. L. MacAtee.—An admirable summary of the case with the conclusions, that the House Wren is a highly beneficial bird; that it destroys the eggs of certain other birds at certain times and places; that the habit has long been known yet the victimized species are as abundant as ever, some of them much more abundant than in the past; that the destructive habit being individual and local should be so dealt with, the remedy being to take down the Wren boxes where the birds are a nuisance.

A Quail Episode. By R. M. Reid.—The call of the female was imitated and two males attracted which engaged in a combat.

A Bluebird's Nest. By W. T. Harper.—A family study.

In 'Notes from Field and Study' there is another plea for bird destruction, the poor Cowbird, one of the most interesting North American birds, being the victim, this time. Its "horrible" habit of parasitism is really part of nature's scheme and as its victims have been always able to hold their own the assistance of over zealous nature assistants is hardly needed. The writer might read Mr. MacAtee's article on the Wren with profit.

**The Condor.** XXVIII, No. 2. March-April, 1926.

Peculiar Nesting Site of the Dusky Warbler. By C. G. Abbott.—In an ornamental fern basket in an open structure adjoining a residence.

The Pool an Attraction for Birds. By F. N. Bassett.

Our Baby Song Sparrow. By Josephine R. Michener.

Acorn Storing Methods of the California and Lewis' Woodpeckers.  
By C. W. Michael.

A First Experience in Bird Banding. By Joseph Mailliard.

William C. Bradbury. By J. D. Figgins.

Notes on the Status of the Peal Falcon. By Allan Brooks.—A dark form of the Duck Hawk occurs as a breeding bird on the Pacific islands from the mouth of the Skeena River to the Commander Islands but the bird breeding on the coast of Washington and Oregon where the juvenal

type of "*peali*" came from is true *anatum*. Therefore, if Mr. Brooks' statement of the case be accepted, as it apparently must be, the bird formerly known as *pealei* requires a new name.

**The Condor.** XXVIII, No. 3. May-June, 1926.

The Habits of the Swifts in Yosemite Valley. By Enid Michael.

Avian Gonads and Migration. By W. H. Bergtold.—A valuable study of the increase in size and weight of the spermaries in birds showing their weight in proportion to that of the body in forty-five species during the resting period and that of activity. The variation is remarkable ranging from a difference of fifteen times in the Pale Goldfinch to one of 1,140 times in the Robin—that is to say that in time of activity the spermaries weighed 1,140 times their weight in the period of rest.

A Report on the Birds of Northeastern Alaska. By Alfred M. Bailey (continued).

In "Notes from Field and Study," Grinnell and Swarth describe a new race of the Spotted Towhee—*Pipilo maculatus umbraticulus* (p. 131) Colnett, Lower California.

**Bulletin of the Essex Co. [Mass.] Ornithological Club.** VII, No. 1. 1925.

Courtship of the Ruddy Duck and of the Coot. By Charles W. Townsend.

The Ipswich River Bird Trip. By Ralph Lawson.—The nineteenth annual trip, 84 species were seen on May 16 and 19 additional on the following day.

The 1925 Essex County Shooting Season. By J. C. Phillips.

Annotated List of Birds Observed in Essex Co. in 1925. By A. P. Stubbs.

Bird Banding Results for 1925. By W. H. Ropes.

Shore-bird Migration of 1925. By W. R. M. Fortat.

Many local notes, abstracts of proceedings and a list of members.

**Bulletin of the Northeastern Bird Banding Association.** II, No. 2. April, 1926.

A Study of the Tree Sparrow Migration in the Connecticut Valley. By W. P. Smith.

The Results from Banding Barnstable Black-crowned Night Herons. By John B. May.

A Partial History of fifteen Tree Sparrows. By Don. V. Messer.

Snowbird weights. By C. L. and H. G. Whittle.

**The Oölogist.** XLIII, No. 3. March, 1926

Marsh Hawk. By A. Blocher.—A study of the species in captivity.

A Night with the Starlings. By L. A. Luttringer, Jr.—Catching them at night at Harrisburg, Pa., in barns where they went to roost. They are then used in trap shooting. As the author truly says: "If something

is not done in the very near future these birds will have become a terrible menace to our town nesting birds." Such a condition has already been reached in localities where the Starlings have been longer established, and if those clamoring for the destruction of the House Wren and Cowbird would direct their attack upon the introduced species they would be doing a real service.

**The Oölogist.** XLIII, No. 4. April, 1926.

A Southern Seabird Colony. By A. Sprunt, Jr.—Morris Island, Charleston Harbor.

**The Oölogist.** XLIII, No. 5. May, 1926.

Summer Birds of the Eastern Shore of Maryland. By L. O. Pindar.—An exceedingly briefly annotated list based on observations made in 1894. It is unfortunate that more detail is not presented especially on such species as the Nonpareil, Loggerhead Shrike, Cliff Swallow Redstart, etc., while some of the water birds such as the White Ibis, Louisiana Heron and certain of the Terns would seem to constitute first records for the state if only backed by explicit data.

Notes on the Chimney Swift. By W. L. Springs.—Some original observations of value including evidence that the nest building is continued after the eggs are deposited.

**The Murrelet.** VII, No. 1. January, 1926.

The Mystery of the Marbled Murrelet. By Allan Brooks.

Ten Days among the East Side Birds and Mammals. By J. M. Edson.—Washington, east of the Cascades, an annotated list.

A Study of Birds' Stomachs and their Contents. III. By J. H. Bowles.—Owls.

A Nesting Colony of Northwest Coast Herons. By J. M. Edson.

Notes from Nisqually, Washington. By E. A. Kitchen and S. Warburton, Jr.

**The Ibis.** (12th series) II, No. 2. April, 1926.

Ouessant Ornithology and Other Notes on French Birds. By Collingwood Ingram.

Spolia Mentawiensis.—Birds. By F. N. Chasen and C. Boden Kloss.—Birds of the Mentawi Islands off the west coast of Sumatra with descriptions of eleven new subspecies.

A List of the Birds of the Falkland Islands and Dependencies. By A. G. Bennett.—This list includes the South Orkneys, South Shetlands and South Georgia, but curiously enough no mention is made of Dr. R. C. Murphy's papers on the birds of the last. There are 121 species listed.

Some Notes on the Hummingbirds included in Chubb's 'Birds of British Guiana.' By A. L. Butler.—Discusses a number of records and incidentally mentions that the birds collected by Waterton during his "Wanderings" are still preserved in the museum of Stoneyhurst College near Blackburn. In a letter at the end of this issue Mr. Butler discusses Beebe's

account of the roosting habits and tarsal structure of the Tinamous. He was sure, when reading Beebe's book, that he had already seen these facts in print, and now after nine years he finds them in Waterton's 'Travels.' Had he taken the trouble to read the reviews of Beebe's work he would have found that others knew at once where these matters were to be found and promptly gave the reference (See Penard in Auk, 1919, p. 217).

Notes on the Geese of the *Branta canadensis* group. By Allan Brooks.—Endorses Swarth's view that there are four recognizable forms of the Canada Goose but considers *minima*, *hutchinsi* and *canadensis* as distinct species with *occidentalis* a subspecies of the last.

On the Birds of North and Central Darfur.—Taxonomic Appendix. By Admiral Hubert Lynes.

On the Identity of *Trochilus sparganurus* Shaw. By A. L. Butler.—The type proves to be *Comeles phaon*.

**Bulletin of the British Ornithologists' Club.** CCCIII, February 25, 1926.

Remarks on the Types of Birds Described by Burton in 1835 from the Himalayas. By C. B. Ticehurst.

Lord Rothschild describes a new race of *Fuvetta* from Yunnan, Stuart Baker has four new Oriental Woodpeckers while N. B. Kinnear reviews the races of *Blythipicus pyrrhotis*. Messrs. Iredale and Matthews propose five new genera of which *Xenicornis* (p. 76) replaces *Xenicus*; and three new names for subspecies preoccupied, one of which is itself preoccupied and is corrected in the next issue where, also, *Megacephalon* is supplanted by *Galeocephala* (p. 93).

**Bulletin of the British Ornithologists' Club.** CCCIV. March 10, 1926.

Col. and Mrs. Meinertzhagen describe new races of Indian and Himalayan birds, N. B. Kinnear describes *Aratinga whitleyi* (p. 82) from a live bird without locality, a procedure the advisability of which is questionable. G. L. Bates has seven new birds from N. W. Cameroon.

**Bulletin of the British Ornithologists' Club.** CCCV. May 4, 1926.

Col. and Mrs. Meinertzhagen have more new races from Kashmir and the Himalayas; M. Hachisuka describes an aberrant Pheasant and a new race of *Nycticorax caledonicus*.

G. L. Bates proposes a new genus, *Grafsia* (p. 105), for *Spreo torquatus* with notes on other Cameroon birds, P. F. Bunyard describes the eggs of *Larus philadelphia* received from A. D. Henderson (see antea p. 288) and N. C. Ticehurst has some new Indian forms.

**British Birds.** XIX, No. 10. March, 1926.

Ornithological Report from Norfolk for 1925. By B. B. Riviere.

Notes on Nesting Birds. By Collingwood Ingram.—Covers species of which nestlings are not described in Witherby's 'Handbook.'

Fledgling Periods of Some British Birds. By T. G. Layshaft and F. C. R. Jourdain.

**British Birds.** XIX, No. 11. April, 1926.

On Swan-Marks. By N. F. Ticehurst.—In the fifteenth to the seventeenth centuries, when Swan raising was at its height, notches were cut in the upper and lower mandibles in curious designs and also on the tarsus and web of the foot, while the hind toe and claws were removed, each owner having his individual design or combination of marks. The bill designs recall the brands used on cattle in the western states. (Continued in May issue.)

The British Birds Marking Scheme. 1925. By. H. F. Witherby.—18,233 birds were banded making a grand total since the work began in 1909, of 164,012.

**British Birds.** XIX, No. 12. May, 1926.

On the Egg Laying of the Grassholm Gannets. By Bertram Lloyd.

**The Oölogical Record.** VI, No. 1. March, 1926.

The Great Skua in Shetland. By W. E. Glegg.—Photographs of nesting birds.

Notes on the Collection of the Late Sir Vauncey Crewe. A Great Auk's egg sold for 305 guineas, almost a record price.

Bird Life of the Muzima Rocks. By C. R. S. Pitwan.—In Lake Victoria Nyanza, Africa.

**Avicultural Magazine.** (4th series.) IV, No. 3. March, 1926.

The Crystal Palace Bird Show. By G. H. Gurney and D. Seth Smith.—Both native and foreign birds were included.

Notes from Rhodesia. By Sydney Porter. (Concluded in April issue.)

Accounts of Hornbills and Hoopes by Delacour and Legendre, and in April the Kingfishers, Rollers and Frog-mouths are treated by the same authors.

**Avicultural Magazine.** (4th series.) IV, No. 5. May, 1926.

An Experiment in Aviaries. By Marquess of Tavistock.—Movable cages made on rollers so that they may be placed in different spots and so avoid the accumulation of injurious matter in the ground which seems to affect the health of birds.

The Parrots are considered in this number by several authors.

**The Emu.** XXV, Part 3. January, 1926.

A New Australian Finch. By N. W. Cayley.—*Donacola lepidothorax* (p. 133) from the Northern Territory.

Birds of the Northern Territory and the New Finch. By G. A. Heuman.

Recollections of an Oölogist. By J. A. Ross.—Presidential address at the recent R. A. O. U. meeting.

Twenty-fourth Annual Congress of the Royal Australian Ornithologists' Union. By D. Dickison.

Birds Observed in the Melbourne Botanical Garden. By N. J. Favaloro.

The Excursion to Murrayville. By J. A. Ross.

Thornbills of the Genus *Acanthiza*. By A. G. Campbell.

A Review of the Australian Species of Strepera. By E. Ashby.

Bird Life around Wellington. N. Z. By R. H. D. Stidolph.

Bird Protection. By A. H. E. Mattingley.—Starlings and English Sparrows are used in trap shooting which helps to abate these nuisances.

**South Australian Ornithologist.** VIII, Part 5. January, 1926.

Notes on Birds of the Eyre Peninsula. By J. B. Cleland.

Methods of Recording Bird Calls. By H. B. Jones.—An excellent discussion of the bird's organs of song which are likened to a trombone; the variety of utterance and their recording.

**Revue Francaise d'Ornithologie.** No. 202. February, 1926. [In French.]

Food Habits of the Cranes, Shore-birds and Gulls. By P. Madon.

A Bibliography of French Faunal Ornithology. By M. Legendre. (Continued in April issue.)

Note on *Choriotis arabs* in Morocco. By J. de Chauvigny.

**Revue Francaise d'Ornithologie.** No. 203. March, 1926. [In French.]

The Problem of the Grebe. By P. Madon.—The eating of its plumage and the method and object of the practice.

Nesting Habits of the Short-eared Owl. By Collingwood Ingram.

**Revue Francaise d'Ornithologie.** No. 204. April, 1926. [In French.]

What is *Accipiter nisus major* Bekker? By E. Stresemann.

Extinct Birds.—The Passenger Pigeon of America. By M. Legendre.

Investigations on the Habits of the Raven in France. By P. Madon.

Habits and Food of the Honey Buzzard. By L. Maniquet.

*Sylvia undata* (subsp.?) of the Dept. of Vienne. By J. de Chavigny.

The Alpine Titmouse. Second Addendum. By H. Jouard.

Some New Information on the Colonies of *Ardea cinerea* in France. By J. de Chavigny.

**L'Oiseau.** VII, No. 1. January, 1926. [In French.]

The Display of the Argus Pheasant. By D. Seth Smith.—Numerous photographs.

Effect of the War on the Birds of the Devastated Regions. By F. Hugues.—Data on the decrease in various species.



The Starlings of Abyssinia. By A. Decoy.—Colored plate of *Spreo superbus* and *Cosmopsarus regius*.

**L'Oiseau.** VII, No. 2. February, 1926. [In French.]

The Pheasants of the Genus *Lophura*. By A. Ghigi.—Two new races described from Sumatra; *L. sumatrana delacouri* (p. 51) and *L. s. albipennis* (p. 51) with a colored plate of the former.

Articles on Parrots appear in these numbers identical with those in the 'Avicultural Magazine.'

**Le Gerfaut.** XVI, No. 1. 1926. [In French.]

Local Notes and Reviews on birds of Belgium.

**Journal für Ornithologie.** LXXIV, Heft 2. April, 1926. Festschrift, 75th Anniversary of the 'Deutsch Ornithologische Gesellschaft.' [In German.]

Account of the Meeting.

Some Remarks on the Climatic Variations in African Birds. By E. Lönnberg.

Atlas and Sahara. By E. Hartert.

On Breeding Experiments on the Ellguth Reservation in Silesia. By E. Drescher.

The Meaning of Ecology in Ornithological Investigation. By R. Heydler.

Bird Weight as a Subject for Biological Research. By O. Graf Zedlitz.

Nature Observations in Silesia. By M. Schlott.

The Present Status of Balkan Ornithological Research. By O. Reiser.

The Results of my two Expeditions to the Headwaters of the Nile. By Alex. Koenig.

The Physiological Basis of Bird Flight. By F. Groebels.

Some Work and Results in Bird Watching in Heligoland. By R. Drost.

Review of My Mutation Studies I-XXIV and their most Important Results. By E. Stresemann.

An Extinct Drepanid, *Sassius simplex*, Rothschild and Hartert.

The Migration Routes of *Lanius senator*, *collurio* and *minor*. By H. G. von Schweppenbergl.

The Wider Extension of the 'Formenkreise' Theory. By O. Klein-schmidt.

The Island Poel-Langenwerder at Wismar as a Station for Ornithological Research and Observation. By H. Wachs.

**Ornithologische Monatsberichte.** XXXIV, No. 2. March, 1926. [In German.]

The Ecology of Our Waterbirds. By H. Hildebrandt.

*Copsychus albispecularis*—Mutation Study. By E. Stresemann.

On *Turacus persa zenkeri*. By E. Stresemann and H. Grote.—Review of allied races.

In "Short Notes" there is a description of a new race of *Streptopelia vinaceus* from Garva.

**Ornithologische Monatsberichte.** XXXIV. No. 3. May, 1926. [In German.]

On the Breeding of Some Javan Birds in Ferns. By Max Bartels.

On the Distribution and Habits of *Leucopsar rothschildi* Stress. By Victor Baron von Plessen.—On the Island of Bali.

On *Accipiter castanilius*. By E. Stresemann.

The Group of *Mesopicos griseocephalus*. By O. Neumann.—*M. g. kilimensis* (p. 80) is described as new from Kilimanjaro.

In "Short Notes" is a comment on the composition of the genus *Diglossa*, a description of a new race of *Lanius excubitorides* from Tschad, comments on the relationship of *Terpsiphone plumbeiceps* and *Dryonastes grahami*.

**Contributions to the Development of Birds.** II, No. 2. March, 1926. [In German.]

Some Notes on the Beginning of the Nesting Period in North Africa. By O. Graf. Zedlitz (Continued in May.)

A contribution to the Damage to Host Birds through *Cuculus canorus*. By G. Schiemann.

Life Histories of Some Little Known Palaearctic Birds. By H. Grote. (Continued in May.)

Removal of the Eggs of Diurnal Birds of Prey and the Substitution of White Eggs of the Hen. By C. Hilgert.

*Stercorarius antarcticus* on its Breeding Grounds at South Georgia. By A. Szielasko.

**Contributions to the Development of Birds.** II, No. 3. May, 1926. [In German.]

Breeding Birds of Palestine. By J. Aharoni.

When and How Often Does the Ortolan Breed? By L. Schuster.

**Ornithologische Beobachter.** XXIII, Heft 4. January, 1926. [In German and French.]

On the Bird Life of New Caledonia. By F. Sarason.—With illustration of the Kagu's nest.

**Ardea** XV, No. 1-2. April, 1926. [Mainly in Dutch.]

Ethology and Psychology of the Bittern. By C. J. Portielje.—[In German.]

A Contribution to the Study of the Cuckoo. By A. Burdet. [In French.]

Breeding Places of the Cormorant in Holland. By G. A. Brouwer.

Observations on Birds 1922-1925. By G. A. Brouwer and J. Verwey.

On the Migration and Life of the Greenland Wheatear in Holland. By J. Verwey.

**Yearbook of the Netherlands Ornithological Club.** 15, No. 4.  
April, 1926. [In Dutch.]

On *Mirafrja javanica*. By H. P. Maasdam.—Excellent photographs of  
the bird at the nest.

The New Subspecies *Parus atricapillus lönnerbergi*. By P. A. Hens.

## CORRESPONDENCE.

## The Fiji Mud-rocks.

Editor of 'The Auk':

I have read with interest the article entitled "A Fossil Bird's Egg from the Post-Tertiary Mud-rocks of Fiji" by Dr. Casey A. Wood, published in volume XLII, No. 3, of your journal last July. I desire, however, respectfully to differ with the author regarding his interpretation of the origin of the rocks from which the egg was obtained.

Dr. Wood evidently believes that the "soapstone" in which the egg was discovered was formed directly by volcanic agencies. He speaks of " . . . a rivulet of partially cooled mud slowly finding its way into the Tertiary ocean upon whose shore a waterfowl had made her nest. An egg is soon buried in the mobile mass and (it may be) covered by successive waves of hot, semi-fluid detritus." Later, referring to other fossils found with the egg, he mentions a " . . . fresh volcanic stream of soft mud, beneath which they sank, perhaps to be still more deeply buried by further waves of hot, semi-liquid material."

The "soapstone" mentioned by Dr. Wood was certainly not formed in the above fashion. In the first place it is not a true soapstone (a name generally applied to a metamorphic rock made up largely of talc) but in many places at least is a marl, or calcareous clay. The name "soapstone" is a local designation given because of its slippery character when wet, as pointed out by Dr. Wood. There are two series of these marls on the island of Viti Levu, one series being much older than the other. The bird's egg came from the younger series.

I am familiar with the younger formation as developed at a number of points in the southeastern quarter of the island. Here it varies in texture, bedding, and possibly in mode of origin but there is no evidence in any case to indicate that it was a hot semi-liquid mass. Generally it is a well bedded sedimentary rock of fine texture and probably was laid down close to shore as a fine mud or silt. The land at this time must have been considerably lower than now. Marine fossils of various sorts are common at certain localities. Locally, as at Walu Bay on the outskirts of Suva, it contains lenses of reef limestone showing coral heads growing in place above a basal conglomerate. Elsewhere layers of pure river sand interbedded with the marls have been reported.

In other places the "soapstone" is coarser and less regularly bedded and may be looked upon as a volcanic tuff or breccia formed by the accumulation of fragmental ejectments thrown out by volcanoes in explosive eruption. These and other beds of volcanic rock were eroded, carried by rivers and deposited near shore to form the typical fine-grained marl of the area around Suva. It is possible also that much of the fragmental material from the coastal volcanoes fell directly into the sea, being sorted by wave action before coming to final rest.

A number of geologists have studied this rock formation in Fiji and the writings of all are in general agreement with the statements made above. It would seem, therefore, that, instead of being engulfed in a stream of hot, lava-like mud, the egg in question was buried near shore by fine sediments brought down by streams or worn from the coast by waves. How the egg reached the sea is another question. The chances of its being washed into a river unbroken are slight—which may account for the rarity of fossil eggs.

In his title, Dr. Wood states that the rocks are post-Tertiary in age, later he mentions the existence of the Tertiary ocean at the time the rocks were formed; at still another point he states that the " . . . age of the fossil . . . is quite speculative." The last statement seems best to fit the known facts as recent workers are not in agreement regarding the age of the Suva "soapstone." Certainly the beds are no older than late Tertiary and they may be referable to the Pleistocene or Recent periods. At the present time the writer is studying fossils collected from the formation with the hope of settling the question.

Very sincerely yours,

HARRY S. LADD.

Suva, Fiji,  
February 15, 1926.

#### Nature-wasters and Sentimentalists.

Editor of 'The Auk':

Mr. Carey's letter in your last number (pp. 275-276), relating the wholesale killing of Hawks in Delaware and New Jersey, is of peculiar interest. Unfortunately, the slaughter of birds of prey is not confined to those states, nor is its encouragement limited to sportsmen's magazines. In my own state, Alabama, the very agency that should protect these birds is operating for their destruction. Three years ago, the new Commissioner of Conservation promulgated a state-wide "Hawk-killing week." Protests availed nothing. This year he inaugurated another and more sweeping "anti-vermin campaign," beginning February 22 and continuing through March, and made these statements in the press:

"Any campaign against vermin which prey upon our protected game birds and animals in this state must necessarily be a voluntary activity on the part of the friends of wild life of Alabama. There is no bounty provided by statute and therefore the state can make no awards. It is expected, however, that sporting goods houses, game protective associations, conservation clubs and individuals will put up prizes or awards to be given to individuals and clubs for work accomplished in the destruction of vermin."

Such organized slaughter demands an immediate and vigorous counter campaign of education if we are to save many of our raptorial species from extinction. But deplorable as is this state of affairs, we should not

allow the pendulum to swing too far in the opposite direction. Some conservationists are so blinded by sentimentalism that they become as extreme as the nature-wasters, and would absolutely prohibit all bird-shooting, even for purposes of scientific investigation. These sentimentalists ignore the significant facts that bird protection in America originated with the A. O. U., and that the arguments which secured the passage of our protective laws were based on the researches of the ornithologist. They are in the same case with people who bend every effort to prevent experimentation with live animals, yet do not hesitate to accept the benefits of serums and vaccines. The nature-wasters are at least consistent.

Now, there is ample evidence that birds which have adapted themselves to habitat changes incident to agriculture and lumbering are in no danger of extermination. Before the days of such organized, systematic killing as just described, there was no appreciable scarcity of Hawks and Owls in my section of the country, notwithstanding that for generations they have been pariahs with the farmers. Meadowlarks have ever been abundant on our home plantation, although not long ago they were legitimate game. Every member of my family was trained to shoot Bob-whites over a dog, yet the supply never failed. Our Bluebirds, Mockingbirds, and Thrashers have never been in actual need of statutory protection. And in spite of former raids on winter roosts of Robins, these birds have not only held their own, but have increased to abnormal numbers (McAtee, 'Bird-Lore,' 1926, 182).

This is not a brief for the removal of protection from any species, but these examples, which could be multiplied, do demonstrate the absurdity of the outcry over a few bird-skins. Except in special cases, such as the persecuted Crows and birds of prey, and birds of extremely restricted range, like the Cape Sable Seaside Sparrow, neither the ornithologist nor the legitimate sportsman, nor even the despised egg collector (I am one of them) can honestly be considered as a serious factor in the survival of the species. The real menace to bird-life lies in the destruction of special habitats, in the mania for draining every marsh and swamp, and for felling every forest. And to preserve intact an adequate number of wild places to insure the perpetuation of all existing species should be task enough to satisfy even the most zealous of conservationists.

By all means let us demand protection for the birds of prey, as well as for all other birds that need it, but amid the clamor for rights it should be remembered that the ornithologists also are entitled to some consideration. Between the sentimentalists and the nature-wasters we seem to be placed as "between the devil and the deep blue sea," for one would stop our collecting by process of law, while the other would leave us nothing to collect.

Very sincerely yours,  
ERNEST G. HOLT.

Carnegie Museum,  
Pittsburgh, Pa.



## NOTES AND NEWS.

JOHN MURDOCH, who died October 8, 1925, was one of the group of eighty-seven persons elected to Associate Membership in the American Ornithologists' Union at its first meeting at New York in 1883. He was born at New Orleans, Louisiana, on July 9, 1852, but spent much of his younger days in Massachusetts, graduating from Harvard College in 1873, and receiving the Master of Arts degree from the same institution in 1876. It was in these earlier years that his interest in natural history began to develop, and he himself was wont to recall the eagerness with which as a lad he began the study of birds under the inspiration of the late W. E. D. Scott, whose devoted follower he became on many excursions in the vicinity of Cambridge for collecting and observing birds. While at college he availed himself gladly of the courses given in natural science and after graduation began his career as a teacher; first, as science teacher at the Chelsea, Mass., high school, 1877-78; then as private tutor at Peekskill, N. Y., 1878-80; and finally as acting professor of zoology at the University of Wisconsin, 1880-81. The great event in his scientific career came in 1881, when he accompanied, as naturalist, the International Polar Expedition to Point Barrow, Alaska. For nearly two full years (to 1883) he was stationed at this northerly point, working enthusiastically to learn everything possible not only as to birds and mammals, but also concerning the invertebrates, botany, meteorology and ethnology of these regions. The able and valuable assistance he rendered is acknowledged by the leader of the expedition, and his published report of over one hundred quarto pages contains much of permanent value. Perhaps the most interesting of his observations relate to Ross's Rosy Gull (*Rhodostethia rosea*), at that time an almost unknown Arctic species, to whose life history he was able to contribute much new information.

In the year following his return from this expedition he was married on July 23, 1884, to Abby De Forest Stuart, of Highland Park, Illinois. Two years later, in 1886, he became assistant librarian at the U. S. National Museum, and from 1887 to 1892 he was librarian at the Smithsonian Institution, after which he returned to Massachusetts and in 1896 became assistant in the cataloguing department of the Boston Public Library with which, until the time of his death, he was continuously associated.

His ornithological publications are few, and except for several briefer notices, consist chiefly in his Point Barrow report and a later historical account of Ross's Rosy Gull. He made a number of other shorter contributions, however, particularly in regard to the ethnology and linguistics of the Eskimo, an interest no doubt first aroused through his Alaskan experience. In 1903 he was elected to the class of Members of the American Ornithologists' Union and for many years was a member of the Nuttall Ornithological Club. A keen fisherman and sportsman in the best sense of the word, his delight in later life was to spend his summer vacations

on Cape Cod, with his family, in the enjoyment of out-of-door pastimes. Of a quiet and scholarly nature, he was also genial and enthusiastic, and in spite of the limitations imposed by the nature of his work, ever maintained the keen interest in natural history that from the beginning marked him as a naturalist born.—GLOVER M. ALLEN.

PROF. HERMAN SCHALOW, an Honorary Fellow of the American Ornithologists' Union since 1911, died in Berlin, Dec. 9, 1925. Previous to his election as an Honorary Fellow he had been a Corresponding Fellow since 1884, having been one of the first foreign members elected after the organization of the Union.

He was born in Berlin, Jan. 17, 1852, and at an early age began to exhibit the traits of collector, historian, and naturalist, which characterized his later life. At 14 he was collecting natural history objects, pictures, autographs, and natural history facts and was reading Von Tschudi's 'Travels in Peru,' at 17 he began his observations on birds, at 19 he entered the bank of Paul Gravenstein & Co., and at 20 was elected a member of the Deutsche Ornithologische Gesellschaft, in the activities of which he took a prominent part and served with distinction until his death.

Schalow's first scientific publication, a review of the genus *Otomela* appeared in 1875 and was followed by 'Zur Ornithologie Persiens' in 1876, 'Tagebuchnotizen aus Italien' in 1877, a revision of *Collurio* in 1878, and 'Biographical Notices of Ornithologists of the Present Time.' This last contribution, prepared jointly with Dr. Anton Reichenow, was one of his most valuable publications and comprised a number of brief sketches arranged alphabetically, which appeared in two series in the 'Ornithologisches Centralblatt' in 1878-79 and 1881. When it is recalled that nearly all of Schalow's scientific work was done in the intervals of the busy life of a business man and banker, the amount which he accomplished was remarkable. His observations in the field were based mainly on brief trips in Germany, Switzerland, Italy and Austria, but he improved every opportunity to study birds of other countries in the museum and in zoological gardens. He published reports on the Musophagidae in 1886, and on the collections made by Richard Böhm in East Africa in 1883, Dr. Vanhöffen in Greenland in 1895, Dr. Plate in Chile and Patagonia in 1898, Dr. Holderer in 1901, and Dr. Merzbacher in Central Asia in 1908. Even more important were his bibliographical contributions, including lists of the publications of Anton Reichenow from 1869 to 1896, and of Jean Cabanis from 1845 to 1892, which appeared in 1906, and his ornithological bibliographies of Central Asia, of the Atlas Region, and of Mark Brandenburg which appeared respectively in 1901, 1906 and 1919. In addition to his biographical accounts of ornithologists and his history of the Deutsche Ornithologische Gesellschaft should be mentioned his two comprehensive monographs 'Die Vögel der Arktis,' 1904, and Beiträge zur Vogelfauna der Mark Brandenburg, 1919. He contributed to the 'Journal für Ornithologie,' the 'Ornithologisches Centralblatt,' the 'Cen-

tralblatt für Deutschlands,' the 'Zoologische Garten,' the 'Ibis,' and other publications.

Schalow's life is an inspiring record of effective scientific work and a remarkable illustration of what can be accomplished even amid exacting business duties. An interesting account of his activities, by Dr. Erwin Stresemann, accompanied by two portraits, may be found in the 'Journal für Ornithologie' for January, 1926.—T. S. P.

DR. FRANK EVERS BEDDARD, a Corresponding Fellow of the Union since 1917, died at his residence in West Hampstead, England, July 14, 1925, a few weeks after his 67th birthday.

He was born at Dudley, England, June 19, 1858, and was the son of John Beddard, a prosperous manufacturer. His education was received at Harrow and at New College, Oxford, where he was a student under Prof. George Rolleston. For two years, from 1882 to 1884, he was engaged in working up the collections of the Challenger Expedition, made under the direction of Sir John Murray. In 1884 he received an appointment as Prosector of the Zoological Society of London, a post which he held until 1915. During these years he published a series of papers on the anatomy of birds and other vertebrates and proved a worthy successor of Garrod and Forbes, who had formerly held the same post. He soon became the leading English authority on the anatomy of birds, and in 1898 published 'The Structure and Classification of Birds,' a most useful epitome of existing knowledge of the subject.

Beddard was equally at home in the field of mammalogy and published the 'Book of Whales,' 1900, and the Cambridge Natural History volume on 'Mammalia,' 1902. He was also author of 'Animal Coloration,' 1892; 'Text Book of Zoogeography,' 1895; a 'Monograph of the Oligochaeta,' 1895, for which he received the gold medal of the Linnean Society; 'Elementary Practical Zoology,' 1898; a volume on earthworms and leeches in the Cambridge Natural History, 1901; 'Natural History in Zoological Gardens,' 1905; and 'Earthworms and Their Allies,' 1912. He also published papers on the anatomy of reptiles and on Isopod Crustacea, and edited 'The Collected Scientific Papers of W. A. Forbes,' 1885. Most of his papers appeared in the 'Proceedings of the Zoological Society' and in the 'Ibis.' Beddard was a member of the British Ornithologists' Union from 1884 to 1902, a Fellow of the Zoological Society of London, a Fellow of the Royal Society, and received the degree of D.Sc. from Oxford in 1912.—T. S. P.

FRANCIS NICHOLSON, a Corresponding Fellow of the American Ornithologists' Union since 1884, died at his home in Windermere, England, Feb. 10, 1925, as a result of an accident with which he had met a few days before.

He was born at Whitmore Place, Old Trafford, Manchester, England, Feb. 16, 1843. He was the son of Robert Nicholson, a cotton merchant,

and Margaret Nicholson, daughter of Samuel Thornby of Liverpool. Young Nicholson was educated at Bowdon and after leaving school was employed for some years in the Manchester and Salford Bank, and later in his father's business. At an early age he developed an interest in zoology. In 1870, he was elected a Fellow of the Zoological Society of London, and three years later a Fellow of the Manchester Literary and Philosophical Society. In the autumn of 1876 he accompanied Henry Seebohm and R. Bowdler Sharpe on a trip to Heligoland.

His first scientific paper, published at the age of 35, appeared in the 'Proceedings of the Zoological Society' and was devoted to the birds of the Abeokuta region now included in Southern Nigeria. During the next decade or more he published several papers in the 'Ibis' and the 'Proceedings of the Zoological Society.' His principal work and the one by which he is remembered by most ornithologists is his translation of Sundevall's celebrated 'Tentamen,' or essay on the classification of birds, published in 1889, which originally appeared in Latin in 1872. (See review in 'The Auk,' 1901, p. 227.) Nicholson also contributed papers to the 'Proceedings of the Manchester Literary and Philosophical Society,' to H. A. Macpherson's 'Fauna of Lakeland,' and to the Victoria County History of Cumberland. His collection of birds is in the Manchester and Warrington Museums. About 1906 he retired from business and took up his residence at Windermere, in Westmorland, where he lived until his death.—T. S. P.

MICHAEL JOHN NICOLL, a Corresponding Fellow of the American Ornithologists' Union since 1919, died in a nursing home at Leeds, England, October 31, 1925, after a serious operation. He was the son of Rev. Charles and Mrs. Nicoll of St. Leonards-on-Sea, and was born at Bepton Rectory, Midhurst, Sussex, England, September 29, 1880. His education was received at St. Leonards School and was followed by two years' training in agriculture. Following an introduction to Dr. P. L. Selater, he worked for a while in the gardens and library of the Zoological Society of London. Through Dr. Selater he met Lord Crawford with whom he made three long cruises as naturalist on Lord Crawford's Steam Yacht, the 'Valhalla,' in 1902-3 around Africa, in 1903-4 to the West Indies, and in 1905-6 around the world. The results of these cruises appeared in 1908 in a volume entitled 'Three Voyages of a Naturalist.'

In 1906, Nicoll received an appointment as Assistant Director of the Zoological Gardens at Giza, Egypt, where he remained for 17 years as assistant to Major S. S. Flower. During this time he brought together a collection of some 4000 specimens of Egyptian birds for the museum in Giza, collected notes for a work on the birds of Egypt, and in 1919 brought out his 'Handlist of the Birds of Egypt.' This work contains notes on 436 species, an increase of 84 over the number included in Shelley's 'Birds of Egypt' published in 1872. He also published several works on

bird protection and economic ornithology and was interested in reestablishing a colony of Herons in the Delta of the Nile.

In 1912, Nicoll married Miss Norris Lyon, in whose honor he named an Egyptian Warbler of the Fayum, *Sylvia norrisae*. In 1923, on the retirement of Major Flower, he was made Director of the Egyptian Zoological Service, but on account of ill health was compelled to return to England a year later, where he settled at Potman's Heath, Wittersham, Kent. Nicoll was elected a member of the British Ornithologists' Union in 1922, and his zoological publications appeared chiefly in the 'Zoologist,' 'London Field,' 'Bulletin of the British Ornithologists' Club,' 'The Ibis' and 'British Birds.'

He is said to have had a charming personality and through his sympathetic and happy temperament, easily won the affections of those who knew him intimately.—T. S. P.

HARRY KIRKE SWANN, of Thornecombe, New Barnet, Herts, England, a Corresponding Fellow of the American Ornithologists' Union since 1919, died April 14, 1926, shortly after an operation.<sup>121</sup> He had recently passed his 55th birthday, having been born March 18, 1871, at Malquits, Ewhurst, Surrey, England. His education was received at the Roan School in Greenwich, and under private tutors. His interest in natural history was developed early, and at the age of 20 he visited Nova Scotia and eastern Canada.

In 1892, he founded the 'Naturalists' Journal' which he edited for two years. In 1893, he began the publication of a number of works which appeared at frequent intervals. In that year he published his 'Birds of London,' in 1895 the results of his visit to Canada in a brochure entitled 'Nature in Acadie,' and in 1896, a 'Concise Handbook of British Birds.'

In 1896 he also edited the fifth edition of Morris' History of British Birds, reissued Seebohm's 'British Birds,' and with O. V. Aplin and others founded 'The Ornithologist,' the first popular British journal devoted to birds, which, however, continued only a year. During the next decade he was engaged in editing the 'Naturalist's Directory,' and in 1899 supervised the publication of W. J. C. Miller's 'Essays and Nature Studies.'

In later years he was interested in the book business, and after the war became one of the partners of the firm of Wheldon & Wesley, Ltd., but in the meantime continued his publication at frequent intervals. In 1913, he brought out his 'Dictionary of English and Folk Names of British Birds,' in 1917, with W. H. Mullins, the 'Bibliography of British Ornithology,' which was supplemented in 1923 by a 'Chronological List of British Birds.' In 1919 he issued his 'Synoptical List of the Accipitres,' the second edition of which appeared in 1921. This was followed in 1924 by his 'Monograph of the Birds of Prey,' a quarto publication illustrated with colored plates by Grönvold to be completed in twelve parts, five of which had appeared at the time of his death. His last completed work



was a book of travel entitled 'Two Ornithologists on the Lower Danube,' containing the results of a trip made in April and May, 1925, which appeared in the autumn of the same year.

Swann visited America in 1921, and those who attended the A. O. U. Congress in Philadelphia in that year had the pleasure of meeting him. He was then engaged on the revision of his 'Synoptical List of the Accipitres.' He was a rapid worker and through his experience in publishing and in handling books was in a position to publish the results of his investigations with unusual facility. To American bird students he is probably best known by his excellent 'Handbook of British Birds,' his 'Bibliography of British Ornithology,' and his works on the birds of prey.—T. S. P.

WILLIAM CHASE BRADBURY, an Associate of the A. O. U. since 1915, a Trustee, and the Honorary Curator of Oölogy of The Colorado Museum of Natural History, died at his home in Denver, Colorado, on October 3, 1925, in the 76th year of his life.<sup>1</sup> He was born at Taunton, Massachusetts, on February 1, 1849, and showed an early interest in oölogy although his active business career prevented extensive indulgence in this subject until his retirement, about 1912, or 1913. He moved to Colorado in the early seventies and for the next forty years was associated with the activities to which the West owes much of its romance and history. Cattle-ranching, freighting, railroad contracting, and irrigation projects were all successfully pursued. In 1872 he married Miss Hattie A. Howe, of Evans, Colorado, and soon after moved to Colorado Springs. He was responsible for the successful introduction in that region of the Scaled Quail (*Callipepla squamata*), a species that has since spread extensively through the Arkansas Valley. After retiring from business the appeal of his old hobby was again heeded and from that time until his last illness he was untiring in his efforts to build up a large collection of the eggs of North American birds.

The writer's personal contact with Mr. Bradbury was established early in 1913, at which time efforts were being made to prepare for installation as an exhibit, the remnant of the eggs from the old Edwin Carter collection. As many of the eggs were seriously damaged, some delicate repair work was necessary, in which Mr. Bradbury took much interest. His official connection with the museum was established about a year later and his interest in the activities of the institution was evidenced in many ways. It was under his patronage that the party, led by the writer, carried out the field work that resulted in the discovery of the nest and eggs of *Leucosticte australis* (Auk, 1916, pp. 41-42). Many other expeditions were made in search of other little-known species, in which his tireless energy usually brought success. In addition to eggs collected personally or under

<sup>1</sup> A memorial prepared by J. D. Figgins, with a portrait, appears in the Condor for March-April, 1926, pp. 74-76, from which certain facts have been taken.



his direction, he was always in the market for sets needed to round out certain series. In purchasing material he adhered strictly to scientific standards and would have nothing to do with eggs for which the data were at all in doubt. Probably the most notable of his single acquisitions was a fossil egg of *Aepyornis*, which was used to form the basic part of a striking exhibit. The last communication received from him by the writer was in the form of a photographic Christmas card showing this exhibit. The results of his observations formed the subject matter for a series of papers that appeared in 'The Condor' during the period from 1915 to 1919.

Masked under a somewhat austere cast of countenance lay the keen sense of humor that made him a delightful companion in the field, where he was always willing and eager to do his full share of the camp drudgery. Generosity was probably one of his most outstanding qualities, and during the period of his connection with the Colorado Museum he frequently made it possible to carry on desirable field work.

The collection of eggs on exhibition at the museum is probably one of the most attractive and useful oölogical exhibits in any American museum. It is of course but a small part of the total collection, the study portion being housed in specially equipped rooms in his own residence. This valuable part, together with his library, has been presented to the Colorado Museum by Mrs. Bradbury, thus without question carrying out his own wishes.—F. C. L.

MISS ADA BELLE COPELAND, an Associate of the Union since 1917, died August 7, 1925, at her home in Grand Junction, Colorado.

Miss Copeland was a real force in the life of her community, where she was for many years, a loved and successful teacher in the public schools. To her is given the enviable achievement of having her work count in the generations to come, not only because of her scholastic usefulness, but perhaps more so because she interested hundreds of growing receptive young minds in "nature," and the wild life about them, thus sharpening the keenness of their perceptions and the correctness of their observations. Her strong sense of duty made her an especially good bird worker because with it was coupled great enthusiasm for an out-of-doors life. Her knowledge of the birds in and about Grand Junction was large and of perennial growth, a knowledge she generously shared with others. Her usefulness as a member of this Union consisted not in published articles but rather in leading her flocks to see and love birds and all their ways.

One records her death with great regret, but there is the mitigation that such as she make for the betterment and progress of this none too good human world of ours.

Perhaps she wore herself out, but it were better, she believed, to wear out in a good cause than to rust out in uselessness.—W. H. Bergtold.

AFTER NEARLY 35 years of continuous activity and growth the Cooper Ornithological Club has felt the need of coalescing its rapidly increasing

membership and bringing into closer personal relationship its two divisions by inaugurating a series of annual meetings. The first of these was held in Los Angeles on April 8 to 10 inclusive, and its success both as to attendance and to the enthusiasm developed far exceeded the hopes and expectations of interested members. It was found impossible to crowd the program of over 40 papers into the five half-day sessions allotted, as the discussions proved general and lengthy, and as a consequence future meetings will doubtless find it necessary to adopt the A. O. U. plan of holding concurrent sessions devoted to different classes of papers. Through the courtesy and personal interest of Director William Allanson Bryan the facilities of the Los Angeles Museum of History, Science and Art, were placed at the disposal of the Club for its meeting, and all sessions save the one devoted to motion pictures, were held in the museum building. The pictures were shown in the State Building nearby on the park grounds.

Emulating the worthy precedent established by the American Ornithologists' Union the Arrangements Committee invited the entire group of American bird artists to send examples of their work for the first time to the Pacific Coast, with the result that a surpassing exhibition was assembled. The collection of nearly 300 pieces occupied three large art galleries in the new wing of the Los Angeles Museum where it attracted so wide a public interest that it was found necessary to hold the pictures over a month longer than was intended. A 46-page catalog of the show was issued containing brief biographical sketches of the 27 artists represented and 16 full page reproductions of paintings on display. Aside from a few pictures by the foremost American bird artists done especially for this exhibition, the outstanding feature, from the standpoint of the ornithologist, was a collection of personalia loaned by Mr. Robert Ridgway. This display of drawings, paintings and documents was the source of much enthusiastic comment, and was the constant focal point of groups of deeply interested visitors. It is understood that a forthcoming issue of 'The Condor' will contain a detailed account of the entire exhibition.

The social features included a reception at the home of Dr. and Mrs. L. B. Bishop, and a like gathering at the home of Mr. and Mrs. Donald Dickey, both residents of Pasadena. Mr. Dickey also entertained the Board of Governors at their special meeting with an informal garden dinner where a mysterious publication called 'The Buzzard' made its appearance.

The Second Annual Meeting will be held in Berkeley next spring at a date to be announced later by the Northern Division.

MR. JOSEPH DIXON, in the interests of Mr. John E. Thayer and of the California Museum of Vertebrate Zoology, is carrying on field work throughout the summer in the Mount McKinley National Park, Alaska. Word comes from him that he has been so fortunate as to find the eggs of the Surf-bird, a feat that has long baffled the efforts of oölogists.

MESSRS. H. F. & G. Witherby will publish in the early autumn a work by Dr. Hopkinson, M. B. O. U., entitled 'Record of Birds Bred in Captivity,' at which he has been working during his leaves from service in West Africa.

The work records the successful breeding of more than 800 species of birds and about the same number of hybrids.

A FEATURE of the annual meeting of the Boston Society of Natural History on May 5, was an exhibition of the 33 original water colors painted by Louis Agassiz Fuertes for Volume I of Forbush's 'Birds of Massachusetts and other New England States.' The Society has received these noteworthy paintings as a permanent loan from the State of Massachusetts, through the kindness of Governor Fuller and Commissioner of Agriculture Gilbert. After the two remaining volumes of Forbush's work have been published, the rest of the paintings in this series (making a total of about 100) will be placed in the Society's care for exhibition and preservation.

At the same meeting of the Society the annual Walker Prize in Natural History was awarded to Mr. Ernest G. Holt, of the Carnegie Museum, Pittsburgh, Pa., for a paper entitled "On the Status of *Ardea occidentalis* Audubon and *Ardea würdemanni* Baird." This year's prize was offered for the best memoir submitted on any subject in the field of ornithology.

THE Forty-fourth Stated Meeting of the A. O. U. will convene in Ottawa, Ontario, Canada, on October 11, 1926 for the business session, with the open scientific sessions following, October 12-14. Headquarters will be at the Chateau Laurier. This will be the first meeting in the history of the Union to be held outside the United States and all of our members should unite in making it a notable one. Ottawa is easily reached by rail and there are no difficulties whatever attendant upon crossing the border. We trust that as many as possible, will plan to avail themselves of this opportunity to accept the hospitality of the Canadian Government and the Canadian ornithologists.

Information may be obtained at any time from Mr. Hoyes Lloyd, Secretary of the local committee.

At our request he has furnished the following tentative program:

*Monday, October 11*, meeting of Fellows and Members.

*Tuesday, October 12*, 9:30 a. m., registration at Museum; 10:00 a. m., addresses of welcome; 10:15 a. m., programme; luncheon. Afternoon, programme. Evening, conversazione at Museum.

*Wednesday, October 13*, 9:30 a. m., programme; luncheon. Afternoon, programme. Evening, Annual Dinner.

*Thursday, October 14*, 9:30 a. m., programme; luncheon. Afternoon, programme. Evening, informal reception at various residences.

*Friday, October 15*, local excursions.

*Saturday, October 16—Sunday, October 17*, An excursion of visiting members to Blue Sea Lake, Quebec. (Subjects to weather conditions.)

AN EXHIBITION of bird art has become an expected feature of an American Ornithologists' Union Meetings. The coming meeting at Ottawa, October 11-14, will be no exception. There will be an exhibition of paintings and drawings of birds in any medium, photographs and sculpture. Pictures may be finished works of art, illustrations, pictorial field notes and studies of details, or old prints, etc., interesting artistically or historically.

The exhibition will be conducted by the Victoria Memorial Museum, in courtesy to the A. O. U., and the following rules will govern:

I. The number of works submitted by an exhibitor will not be limited but the Exhibition Committee reserves the right to exhibit only those it deems suitable to the occasion.

II. The Exhibition will be held in the Victoria Memorial Museum building, which is of fire-proof construction and well guarded night and day against fire and other dangers.

III. The Museum will engage to take every possible care of pictures while they are in its possession, but will not be responsible for loss or damage. If required it will pay one-half the costs of insuring the pictures while in its hands.

IV. Pictures may be framed or not. Photographs should be mounted, preferably on grey or neutral colored cardboard.

V. Pictures valued at \$20.00 or more enter Canada free of duty and arrangements will be made with the customs houses of both countries to facilitate the entry and return of exhibits with as little trouble to the exhibitor as possible. To those who indicate an intention to exhibit, full directions for shipment will be sent.

VI. Exhibits should be received in Ottawa by October 1st., but exhibitors are urged to send their contributions as early as possible to allow for unavoidable delays in customs clearance, etc. The Museum reserves the privilege of retaining the exhibition until November 1st.

VII. Pictures may be shipped by express or by parcel post. If by the former, transport will be paid by the Museum and all will be returned to the exhibitor prepaid.

VIII. Pictures may be sold during the exhibition, and exhibitors are requested to inform the Museum as to the prices they ask for such works as are for sale. The Museum will endeavor to put prospective buyers and owners in touch with each other, but can not act as agent for either party. All pictures must remain in the Exhibition until it closes.

IX. Shipments should be addressed to the Director, Victoria Memorial Museum, Ottawa, Canada, with contents and object plainly indicated on outside of package.

X. Contributors are urged to notify the Director of their intention to participate and the probable extent of their offerings as early as possible in order that adequate facilities may be provided.

P. A. TAVERNER, Chairman,  
Victoria Memorial Museum,  
Ottawa, Canada.